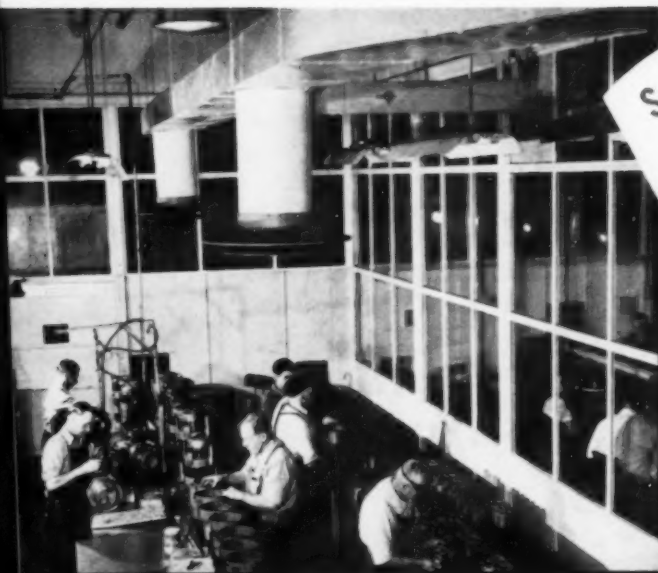


COMMERCIAL REFRIGERATION & AIR CONDITIONING

JULY 1955



Sell Air Conditioning to Industry
FOR PROCESSING & MANUFACTURING

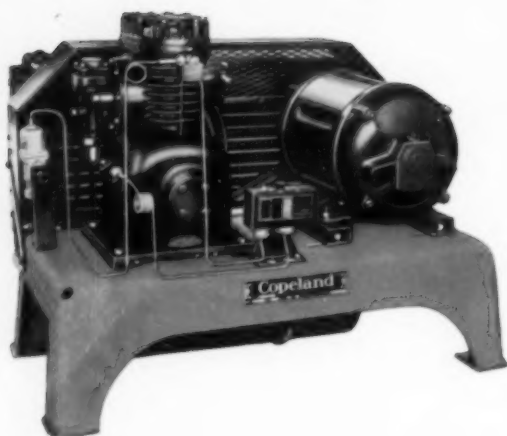


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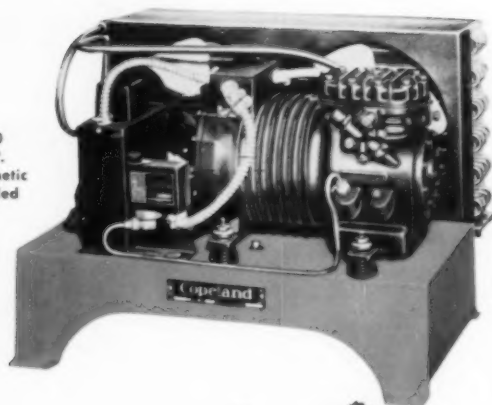
Sell Air Conditioning to Industry
FOR EMPLOYEE EFFICIENCY . . .

- SEVEN UNITS — NO DUCTS 82
- "OVER-POWER" YOUR COOLING PROBLEMS 74
- PROPER INSULATION IS THE KEY 78
- COOLING HELPS PLANT RUN SMOOTH AS SILK 73
- FACTORY AIR CONDITIONING PRESENTS SPECIAL PROBLEMS 84

**MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF
AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT**



Z-100
1 H.P.
Copelametic
Air-cooled

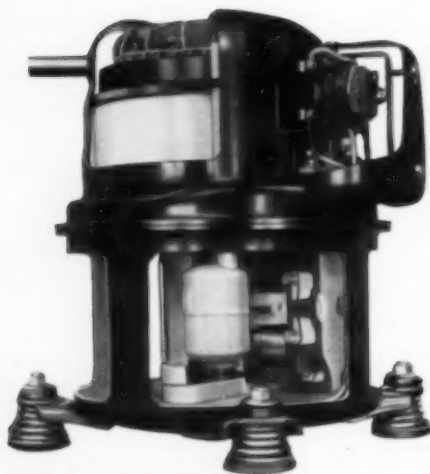


315-W
3 H.P.
Water cooled
Belt-driven



steady performance
means steady profits

with the Copeland line



1 H.P.
Welded

When you sell refrigeration, build your installations around Copeland quality compressors . . . you'll satisfy the customer and safeguard your reputation.

The complete Copeland line gives you a selection of size and type for *every* refrigeration and air conditioning job. Air-cooled, belt-driven models range from 1/4 HP through 3 HP, water-cooled from 1/3 HP through 7 1/2 HP. Copelametic, the accessible hermetic, is available from 1/6 HP through 7 1/2 HP. Copelaweld, welded motor-compressors, are presently available in 1/2 HP through 1 1/2 HP. Specify Copeland and you'll reap these big advantages:

- (1) The industry's top engineering design
- (2) Year-in, year-out dependability that builds repeat business
- (3) Potent national advertising that makes Copeland easier to sell, more profitable for you.

Copeland
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COPELAND REFRIGERATION CORPORATION
SIDNEY, OHIO

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NO TUBE CUTTER!

NO BRAZING!

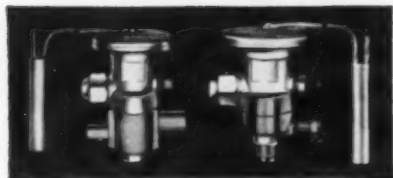
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ALCO design
saves you money
and time

you
service

"T" SERIES
ALCO THERMO VALVES

without
breaking connections



SOLDER OR SAE FLARE

For all temperature ranges—all
operating conditions.

.5 ton—50 tons "F12"
.5 ton—80 tons "F22"

engineered
for service
for life

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Expansion Valves; Evaporator Pressure
Regulators; Solenoid Valves; Float Valves;
Float Switches.



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ALCO VALVE CO.

843 KINGSLAND AVE. • ST. LOUIS 5, MO.

Loosen cap screws, raise power element,
lift out the cage...that's all! Alco
come-apart construction gives instant
access to all working parts...for
cleaning, repair or capacity change.

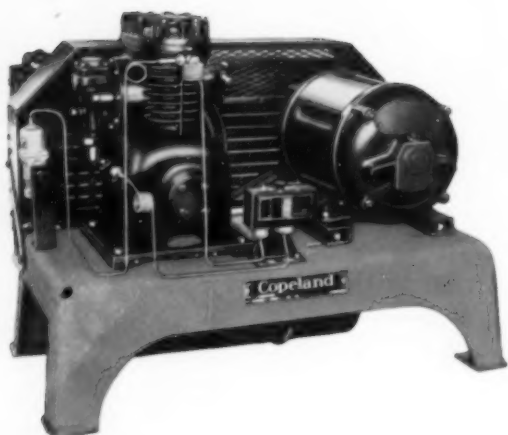
2½-inch headroom is sufficient space for
installation and servicing!

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ALCO "T" Series Thermo Valves!*

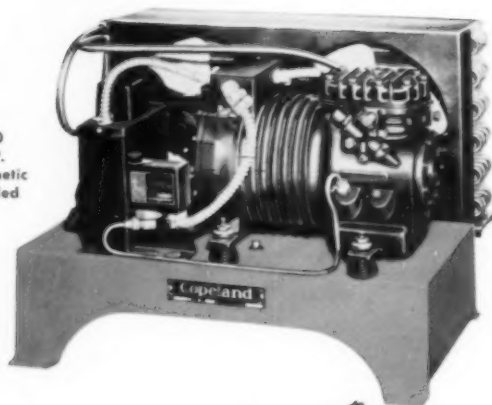
write for bulletin 171-53 today

Circle No. 4 on Reader Service Card

6C00D



Z-100
1 H.P.
Copelametic
Air-cooled



315-W
3 H.P.
Water cooled
Belt-driven



steady performance
means steady profits

with the **Copeland** line



1 H.P.
Welded

When you sell refrigeration, build your installations around Copeland quality compressors . . . you'll satisfy the customer and safeguard your reputation.

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DEPENDABLE *Electric* REFRIGERATION

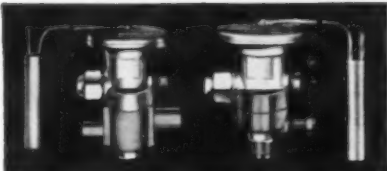
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SIDNEY, OHIO

NO TORCH!
NO TUBE CUTTER!
NO BRAZING!
NO SAWING!



ALCO design
saves you money
and time

you
service
"T" SERIES
ALCO THERMO VALVES
without
breaking connections



SOLDER OR SAE FLARE

For all temperature ranges—all
operating conditions.
.5 ton—50 tons "F12"
.5 ton—80 tons "F22"

Loosen cap screws, raise power element,
lift out the cage... that's all! Alco
come-apart construction gives instant
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cleaning, repair or capacity change.

2½-inch headroom is sufficient space for
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*Save money—save servicetime—install
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write for bulletin 171-53 today

SEE YOUR ALCO WHOLESALER

engineered
for service
for life



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Expansion Valves; Evaporator Pressure
Regulators; Solenoid Valves; Float Valves;
Float Switches.

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ECOD

Controlled Comfort.....B.B.*

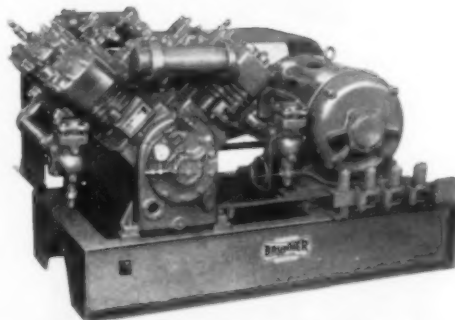
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In days of old, all the King's horses and all the King's men... plus the royal fortune... couldn't come up with anything better than a simple fan to cool His Majesty's brow.

It took horsepower of another kind... electricity plus engineering and design knowhow... to create the modern version of "controlled comfort" produced by Brunner.

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JULY, 1955 • COMMERCIAL REFRIGERATION

COMMERCIAL REFRIGERATION & AIR CONDITIONING

JULY 1955 • VOLUME 12 • No. 7

IN
THIS
ISSUE

FEATURE ARTICLES

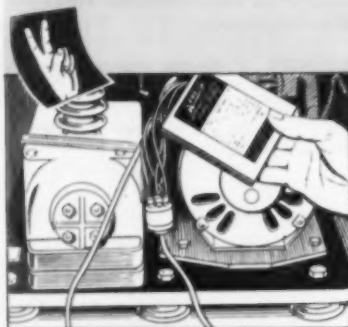
- 46 **REFRIGERATED ENVIRONMENTAL TEST EQUIPMENT . . .** helps improve product efficiency for a manufacturer of photographic equipment. The units were custom-built by a contractor.
- 48 **DON'T PASS BY THAT EMPTY STORE . . .** If you're willing to be a "business broker", you can make it a profitable source of refrigeration equipment sales.
- 49 **KEEP YOUR CUSTOMER HAPPY . . .** that's the creed of this service contractor. Here's how he does it through telephone call-backs that ease the jolt of service charges.
- 50 **ICE MAKERS PRODUCE \$24,000 ANNUAL SAVINGS . . .** for this large-scale user. A similar savings story can help sell almost any kind of cooling equipment.
- 52 **BALANCING THE REFRIGERATION SYSTEM . . .** with the aid of proper flow control devices. Part 6 concludes this series with a discussion of suction and pressure regulators.
- 73 **SMOOTH AS SILK . . .** This textile plant's processing techniques changed with the years. Here's how an air conditioning contractor tailored the plant's system to meet the new requirements.
- 74 **"OVER-POWER" YOUR COOLING PROBLEMS . . .** That's one solution to the problem when you're faced by a puzzling variety of air conditioning requirements on a single system.
- 75 **RELOCATED FILTERS SOLVE LINT PROBLEM . . .** A simple but ingenious adaptation made packaged units practical in a troublesome location.
- 76 **COOLING TOWERS CAN BE CAMOUFLAGED . . .** Many contractors are now working hand in hand with architects to achieve a more harmonious design in new modern buildings.
- 78 **PROPER INSULATION . . .** proved the key to this air conditioning installation in an Atlanta, Ga., printing plant.
- 79 **PRINTERS ARE GOOD PROSPECTS . . .** for air conditioning installations. This article explains some of the reasons why.
- 80 **HOW TO BUDGET YOUR ADVERTISING DOLLARS . . .** is outlined in this detailed program prepared for dealer use by a merchandising-minded manufacturer.
- 82 **SEVEN UNITS—NO DUCTS . . .** That's the story of how one engineer solved the air conditioning problems of this one-floor garment factory.
- 84 **FACTORY AIR CONDITIONING . . .** presents special problems. This article tells what they are and suggests some practical ways of solving them.

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3 steps to MOTOR CAPACITOR REPLACEMENT



PROFITS



Correct diagnosis... immediate service... stay-put job. Those three steps insure your PROFITS, first and last. Here's how...

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IRVING B. HEXTER President
LESTER P. AURBACH ..Exec. Vice President
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EDITORIAL STAFF

THEODORE T. QUINN ..Managing Editor
JIM McCALLUMEditor
RICHARD R. TRYONAssociate Editor
ALARIC MAUSSERArt Director

BUSINESS STAFF

ALAN J. KICHLERGeneral Manager
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SALES OFFICES

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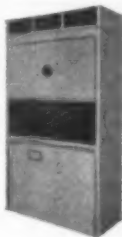
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Profits are higher—when you're backed by *advertising*! Airtemp runs specific benefit advertising aimed directly at the businesses who need air conditioning most.

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... in slashing power costs on your refrigerated cases and freezer equipment

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Tests prove that refrigerated cases insulated with Rubatex Insulation Hardboard require as low as 53 per cent of the power required by other insulation materials to maintain constant low temperature. In addition, the very low moisture pick-up of Rubatex and its durable structural properties mean years of service on the job.

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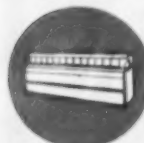
REACH-IN



SELF-SERVICE CABINET



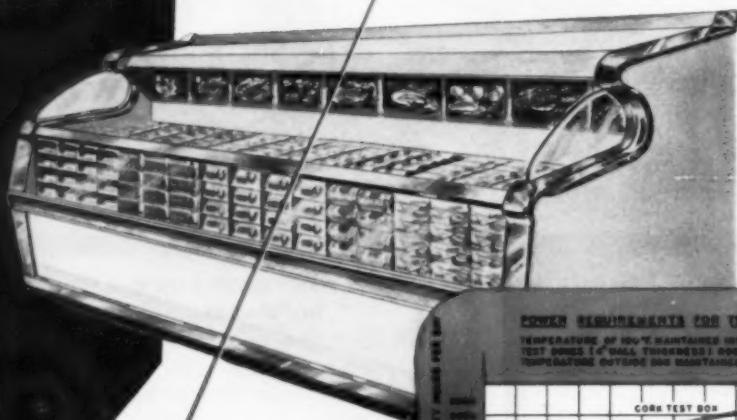
WALK-IN



FROZEN FOOD CABINET



FOOD DISPLAY CASE



Pennsylvania State College tests show effectiveness of Rubatex Insulation Hardboard in reducing operating costs and water absorption.

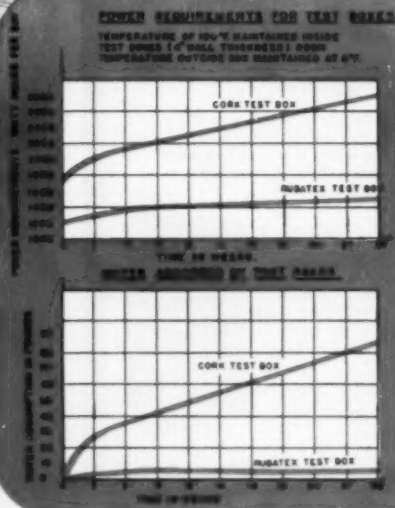
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COIN METER
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Frick Bulletin 504 features general air conditioning; 505 shows engineering details of Frick systems; 522 describes Frick unit air conditioners. See also the Frick pages in Sweet's Catalogs.



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HEAT INTERCHANGERS—Inner-Fin construction. No oil trapping problem. Low Freon charge required. $7\frac{1}{2}$ to 100 Tons.

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CAST ALUMINUM LIQUID COOLERS
Separate refrigerant and water circuits cast within aluminum block. No freeze-up damage.



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HEAT-X, Inc.

BREWSTER • NEW YORK

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It's the LAW!

by Albert Woodruff Gray

Legal problems are an inherent part of operating any business enterprise. If you are beset by them, you'd better talk to your lawyer. This column, which will appear periodically in the issues of **COMMERCIAL REFRIGERATION AND AIR CONDITIONING**, in no way aspires to serve as legal counsel for our readers. It is prepared, however, by a man well versed in legal practices and opinions, and by presenting digests of actual court cases involving commercial refrigeration and air conditioning dealers and contractors we hope to enable our readers to sidestep some of the legal pitfalls into which they otherwise might unwittingly stumble.

—The Editors

PAYMENTS STOP IS APPROVED

THE owner of a drug store in Texas contracted for the purchase and installation of refrigerating equipment in connection with the operation of a soda fountain. The machine was guaranteed to have a refrigerating capacity equivalent to the melting of 500 pounds of ice each 24 hours and to maintain a temperature not higher than 5 degrees Fahrenheit and to refrigerate four containers of ice cream.

The price was payable in monthly installments. After eight payments had been made the purchaser sued for a recovery of the amount he had already paid, together with that for repairs and adjustments on the ground that the plant had failed to fulfill the guarantee of the dealer.

The defense of the dealer was that as the purchaser had paid eight installments, he had waived any right to ask for a cancellation of the contract and refund of his payments. The Texas appellate court in affirming a judgment in favor of the purchaser said,

"Nor do we think the fact that the purchaser had paid eight of the monthly installments would estop him from claiming the right of rescission and cancellation inasmuch as he had been trying to get the dealer to adjust the machine which it had promised to do but had failed." To this the court added in relation to the outstanding and unpaid notes, "We have concluded to allow the purchaser a recovery in addition to the judgment rendered, for

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Step Up to

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Super-Dry
REFRIGERANTS

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- * Critical and freezing points are well outside range of operating uses.
- * Solvent action on oil helps prevent solidification or congealing of lubricant.
- * Miscible with oil; aid in lubrication of equipment.

Order today—from the man with the bright green "Genetron" mat on the counter!

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DICHLORODIFLUOROMETHANE

genetron 141—GREEN LABEL
MONOCHLORODIFLUOROMETHANE

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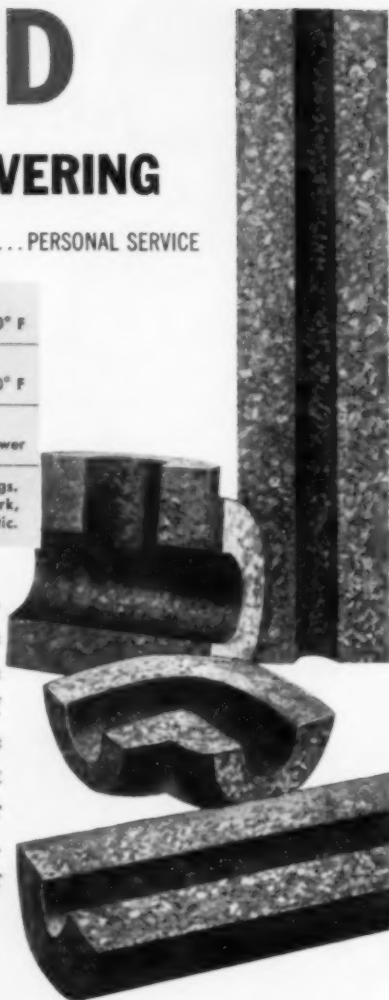
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(Ice Water)to 30° F

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- Permanent and durable, lowest long-term cost
- Does not support combustion
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- Has no capillarity

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Manufacturers of
cork insulation for almost a half century

Engineering offices, or approved distributors, in key cities — coast to coast.

Circle No. 14 on Reader Service Card

such sum of money as he may be required to pay in satisfaction of these four unpaid notes."

Way v. Siddall, 299 S.W. 313, Texas.

CENTRAL SYSTEM CALLED ENTITY

A contract for the installation of a refrigerating plant provided for risers or pipes through the walls of the building, and two compressors in the cellar in addition to refrigeration boxes. Later when suit was brought for the repossession of this equipment by the contractor under a conditional sale contract the defense was interposed that the equipment had become a part of the building and could not be removed.

"As an integral part of this construction," said the court, "the system of refrigeration, available to each unit and dependent upon a central system, was contracted for and constructed. This includes not only the individual units but the basic parts in the construction of the walls of the building itself.

"It is impossible to separate the different portions of the equipment, one from the other, and say that this is detachable and this is not, but the system must be considered as a whole. While the dealer might remove portions of the equipment without physical damage to the property, considered merely as real property, it could not do so without wholly destroying the system considered as a part of the building."

Domestic Electric Co. v. Mezaluna, 162 Atl. 722, New Jersey.

EQUIPMENT RULED PART OF REAL ESTATE

A New Jersey dealer sold cabinets, coils and a compressor to the owner of a building under a conditional sale agreement by which the ownership of the equipment remained in the dealer until the price was paid. The dealer also supplied without charge risers, conduits and incidental equipment. The installation was made by the owner and a concrete foundation for the compressor constructed in the basement. Later when the mortgage on the building was foreclosed on the owner's default in the payment of interest, the dealer sued the purchaser of the building on the foreclosure sale, for possession of the equipment.

The court denied the dealer possession and said in quoting from an earlier decision in that state in a case involving similar circumstances,

"A system of refrigeration available to each unit and dependent upon a central system is contracted for and constructed as an integral part of this construction. This includes not only the individual units but basic

HENRY

ASME

relief valves

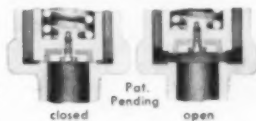
*for Extra Capacity
Extra Safety*



Type 523 Straight-Through Relief Valves

**FOR FREON
AND SIMILAR
REFRIGERANTS**

This relief valve has the Henry "Controlled Cushion" cup seat disc construction which prevents deformation of sealing ring and assures consistent operation. This design provides positive relief at predetermined set pressures. Brass construction. Sizes (inlet x outlet) 1/2" M.P.T. x 3/8" Flare; 1/2" F.P.T. x 1/2" F.P.T.; 3/4" F.P.T. x 3/4" F.P.T.; and 1" F.P.T. x 1" F.P.T.



"Controlled cushion" cup seat disc construction

Type 52
Angle Relief Valve

This forged brass valve is available in sizes (inlet x outlet) 1/2" M.P.T. x 3/8" Flare and 3/4" O.D.S. x 3/4" O.D.S.



ASME

NB

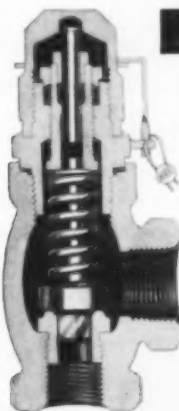
National Board Certified

All Henry Relief Valves in the sizes and types listed below are constructed in accordance with the standards of the ASME. In addition these valves are stamped NB to indicate National Board Certification as to capacities.

FOR AMMONIA

Angle Relief Valve

Has soft metal alloy seat and push rod for emergency reseating. Stainless steel trim. Sizes (inlet x outlet) 1/2" F.P.T. x 3/4" F.P.T.; 3/4" F.P.T. x 1" F.P.T.; and 1" F.P.T. x 1 1/4" F.P.T.



All the above valves can be furnished at any desired pressure setting in the range of 50-350 P.S.I.

Write us for data sheet #AE-1303 showing new increased capacity ratings of these Henry relief valves.

See your Henry wholesaler for these certified relief valves.

HENRY VALVE CO.

Melrose Park, Ill. (Chicago Suburb)
Cable: HEVALCO, MELROSE PARK, ILLINOIS

Specialized Manufacturers of the Complete Line of Relief Valves
for Refrigeration and Air Conditioning

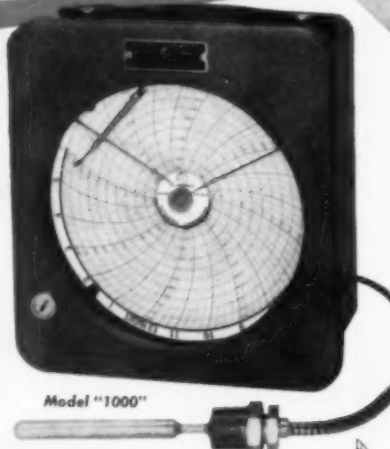


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TEMPERATURE RECORDING...

Newly designed, Model "1000" Auto-Lite Recorder gives permanent proof of temperature behavior. • 6" clear reading chart; various standard ranges from minus 40°F. to plus 550°F. • 3 standard types; choice of 24-hr. or 7-day cycle. • Electric or mechanical chart drive. • With capillary tubing for remote reading. Priced from \$49.50.

Send for new catalog describing many styles of Auto-Lite Temperature Recorders and Indicators.



Model "1000"

THE ELECTRIC AUTO-LITE COMPANY
INSTRUMENT AND GAUGE DIVISION
TOLEDO 1, OHIO
NEW YORK • CHICAGO • SARNIA, ONTARIO

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ROTARY SEAL

Replacement Units

The original replacement units—performance-proved in many thousands of installations during almost a quarter century. Available in a wide range of sizes for Commercial, Semi-Commercial, Air Conditioning and Household Refrigerator Compressors of well-known makes.

AT
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LEADING
JOBBER'S



EASY TO
INSTALL
EFFICIENT
IN OPERATION
ECONOMICAL

2020 NORTH LARRABEE STREET
CHICAGO 14, ILLINOIS, U.S.A.

CANADIAN AGENT: 2025 ADDINGTON AVENUE, MONTREAL 28, QUEBEC, CANADA

parts in the construction of the walls of the building itself. It is under an entire contract and it is impossible to separate the different portions of the equipment, one from the other, and say that this is detachable and this is not. The system must be construed as a whole. Where the dealer might remove portions of the equipment without physical damage to the property, it could not do so without destroying the system considered as a part of the building. They are no more removable without material injury than would be the carrying away of the front door, although the unhooking of the door would be less difficult."

B & O Radio, Inc. v. Prudential Ins. Co., 184 Atl. 208, N.J.

FILING CONDITIONAL SALE CONTRACT

A New York manufacturer sold and installed refrigerating equipment under a contract of sale which provided,

"Machinery or materials furnished by the contractor shall remain personal property whether attached to the realty or otherwise and the title shall remain in said contractor until the entire purchase price shall be paid."

A statute of that state which is substantially the law in the majority of the states is that if equipment such as this is installed and the seller fails to file the contract in the office where deeds to real property are filed, the reservation of property or ownership is void and unenforceable against purchasers who have no knowledge of the agreement.

The purchaser failed to pay as agreed and when the building in which this refrigerating machinery had been installed was sold the purchaser of the building refused to surrender it to the dealer.

In its decision against the dealer who sued the purchaser of the property for the value of this equipment, the court referred to an earlier decision in that state as an authority, which was in part,

"The statute informs the purchaser of the land concerning his rights and duties. If he searches the office where land titles are recorded he may find documents describing the equipment, its conditional owner and the circumstances under which it happens to be attached to the realty. If no such documents have been placed on file the statute assures him that he may confidently purchase the fixtures. If the seller files a copy of the conditional bill of sale and the brief statement directed by the statute, his rights likewise are fully guarded."

Foss v. Melrose Bond & Mortgage Corp., 288 N.Y.S. 576, N.Y.

BUY FROM YOUR
REFRIGERATION WHOLESALER

Sensitive...yet Rugged!

These White-Rodgers thermostats disregard accidental jars, bumps and other adverse conditions met in commercial and industrial installations to continue giving reliable, sensitive operation.

That's why heating and maintenance engineers, architects and contractors specify them for all their heavy duty installations.

Why don't you!



Available in self-contained, remote bulb, explosion-proof and tamper-proof types with special features to fill every heating and air-conditioning need. Write for catalog.



WHITE-RODGERS
Controls FOR HEATING • REFRIGERATION
AND AIR CONDITIONING

ST. LOUIS 6, MO.
TORONTO 8, ONTARIO

No matter how well built the heating plant you install...if its performance depends on automatic controls...it can be no better than the controls with which it is equipped.

Easy to See Why

SERVEL SUPERMETIC

Runs Cooler . . . Quieter . . . More Economically

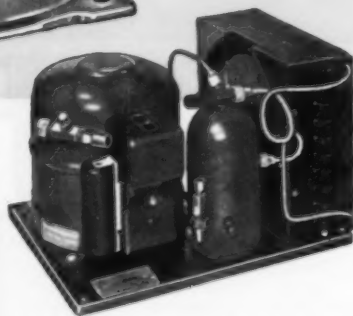
Geyser-like action of oil spray from top of shaft dissipates compressor heat through power unit dome — soundproofs movement of internal parts.

Refrigerant vapor returning from evaporator coil envelops stator windings — reduces motor heat to assure highest efficiency of power elements.

Easily accessible controls have long capacitor leads — only wiring required is to connect supply line to 2 terminal posts.

Internal spring mountings eliminate vibration. Unit can be bolted securely to mounting supports.

Here are Servel features that boost profits when commercial refrigeration and air conditioning fixtures are "powered by Supermetics." Simple to install, exceptionally easy to check — Servel's quiet, dependable operation will please your customers, create more sales. If you are not now using Servel, order a Supermetic for your next applications. All models are factory-warranted.

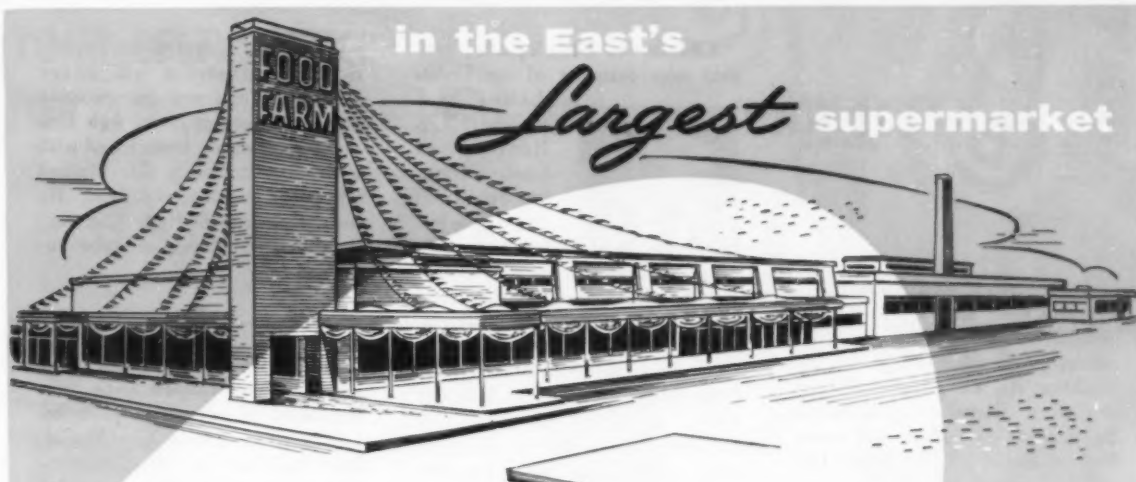


Servel hermetic condensing units for expansion valve or capillary tube type systems, and hermetic power units are available in all popular sizes from $\frac{1}{4}$ through $7\frac{1}{2}$ H. P. Write today for complete set of Supermetic model specifications.

Servel

SERVEL, INC., Commercial Refrigeration Division, Evansville 20, Indiana

THE NAME TO WATCH FOR GREAT ADVANCES
IN REFRIGERATION AND AIR CONDITIONING



in the East's

Largest supermarket

...**FOOD FARM** perishables are **TENNEY-PROTECTED**

Here under one roof — almost 40,000 sq. ft. of food and fashion — is a huge load that requires over 160 tons of reliable refrigeration and air conditioning equipment . . . enough to cool two large roller skating rinks

Food Farm engineer, Phil Spiro had to be sure when he selected equipment for this New Dorp, Staten Island market—a new concept in merchandising. He selected versatile Tenney units, industry renowned for top-performance and economy. Half-round TW units for comfort and preservation cooling . . . the easiest cooler to install and service ever designed—removal of a single thumb screw exposes all component parts. Highly-engineered Tennyaire coil and pan combinations with balanced louver design that eliminates dripping and improves air circulation. Every Tenney unit has famous Facetized* fin coil sections, unrivalled for refrigeration efficiency . . . there's a dependable Tenney unit for every refrigerated enclosure.

Find out today why Tenney equipment is the fastest growing equipment in the market . . . write to Dept. CR-7 for Bulletins 107-55 (Coil and Pan) and 104-54 (TW Units), NOW!

*Patented



Tennyaire Coil and Pan combinations in pre-pack room



Tenney TW half-round units in fish box



Mr. Spiro inspects Tennyaire Coil and Pan combinations in meat storage room



Tenney TW half-round units in produce box

Tenney
ENGINEERING, INC.

1090 SPRINGFIELD ROAD, UNION, N. J.
Plants: Union, N. J. and Baltimore, Md.

Engineers and Manufacturers of Refrigeration and Environmental Equipment

U-10

ABOUT PEOPLE

J. F. Spitzel and Richard L. Herron have been appointed east central and west central district managers, respectively, for the Sunbeam Air Conditioner Div. of American Radiator & Standard Sanitary Corp. Spitzel will cover Boston, Buffalo, Cleveland, Detroit, Ohio, Pittsburgh and the



J. F. Spitzel

R. L. Herron

tri-state area. Herron will cover Chicago, Kansas City, Minnesota, Omaha, St. Louis and Wisconsin-Illinois. Spitzel formerly was heating sales manager of all branches of W. A. Case & Son Mfg. Co., Buffalo. Herron, who joined American-Standard in 1952, for the past two years has been district manager in the Kansas City territory.

Robert H. Meyerhans has been appointed director of engineering of Fedders-Quigley Corp. Meyerhans, who succeeds Robert W. Morgan, joined the company's engineering department in 1949. He later



became chief project engineer of the room air conditioner division. Before becoming associated with Fedders, Meyerhans was chief engineer on room air conditioners for General Electric.

Chester S. Stackpole, general sales manager of the Union Asbestos & Rubber Co. Heating and Cooling Div., has resigned to become managing director of the American Gas Association.



Stackpole came to Unarco in February of 1954 from the Eureka-Williams Corp., where he served as vice president in charge of domestic sales, advertising and sales promotion. Prior to joining Eureka-Williams in 1951, he was vice president and general sales manager of the Chrysler Corp.'s Airtemp division.

John F. Fraser, Jr. has joined Rheem Mfg. Co. as sales promotion manager for the Chicago region. For the past two years, Fraser has been an assistant account executive in the Chicago office of Campbell-Ewald Co., advertising agency.

Richard B. Stranahan, formerly regional manager of the Deepfreeze Appliance Div., has been appointed central divisional manager of the Pak-A-Way Freezer Div. of Schaefer, Inc. Prior to his association with Deepfreeze, he was sales manager of Triangle Industries in Chicago, and for a number of years was employed by Commonwealth Edison, Chicago.



David B. Ruthstrom and Joe Manuel have been appointed district sales managers for the Commercial Products Div. of the O. A. Sutton Corp. to work with distributors, dealers and builders on the sales and installation of the

company's residential air conditioner. Ruthstrom will cover Houston, Tex., and surrounding areas. He formerly was with Kelvinator's Houston branch and with Roberts Distributing Co. Manuel will cover the eastern district. He formerly was with Hyde Mfg. Co., Southbridge, Mass., as sales coordinator.

Robert V. McCallister and H. Richard Harper have been appointed to new sales posts by L.O.F. Glass Fibers Co. McCallister has been named sales manager of equipment and industrial



R. McCallister

H. R. Harper

sales, and Harper has been named manager of equipment sales. Both men will be concerned with sales of thermal and acoustical insulation products for freezers, refrigerators, air conditioners and similar equipment, and McCallister also will supervise sales for industrial applications and in commercial buildings and factories.

Appointment of **Frank J. Gleason** as executive vice president of Copeland Refrigeration Corp. has been announced by Harry E. Thompson, president. Elevation of Gleason to a position of greater responsibility



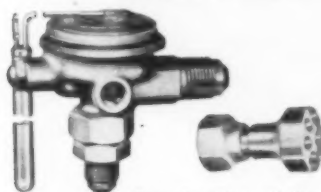
has been brought about by the growth of the company and the attendant need for greater distribution of administrative responsibility. He also continues in the office of treasurer. Gleason joined Copeland in 1937 as a vice presi-

YOUR BEST SOURCE

FOR A FULL LINE OF REFRIGERATION CONTROLS—

DETROIT CONTROLS

THERMOSTATIC EXPANSION VALVES



Complete line of distributors, up to 18 passes.

A broad line of valves with capacities to 25 tons F-12 and 40 tons F-22.

SOLENOID VALVES



A broad line of valves with capacities to 50 tons F-12 and 60 tons F-22.

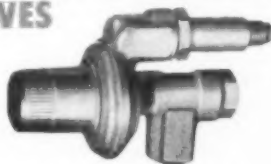
Special purpose miniature solenoid valves for any application.

STRAINERS



Most complete line from smallest noncleanable to large "Y" type cleanable strainers up to 3 3/8" ODF connections in some models. Also special ferrous types for ammonia.

AUTOMATIC EXPANSION VALVES



Extremely sensitive to pressure change and consistent in operation, these valves have various adjustable ranges from 25" vacuum to 100 P.S.I.

AUTOMATIC CONTROLS



A wide range of controls for pressure, temperature, dual pressure applications, plus sequence and other special controls.

AUTOMOTIVE AIR CONDITIONING CONTROLS

Combination by-pass and suction valve with operating cam. These valves are engineered to meet high - performance requirements.



CRANKCASE PRESSURE REGULATOR



(Hold-back Valve)

**Get the COMPLETE Picture . . .
Use the COMPLETE Line . . .**

**See Your DETROIT CONTROLS Wholesaler
. . . or write for condensed Catalog 200-D**

DETROIT CONTROLS CORPORATION

5900 TRUMBULL AVE. • DETROIT 8, MICHIGAN
Division of AMERICAN RADIATOR & STANDARD SANITARY Corporation



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RAILWAY AND ENGINEERING SPECIALTIES, LTD.,
Montreal, Toronto, Winnipeg.



AUTOMATIC CONTROLS for REFRIGERATION

AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWAUNEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

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YOU'RE PROTECTED **3** WAYS
WHEN YOU INSTALL

AMERICAN

VIBRATION ELIMINATORS



2 Installed clean, bright and dry. The tough, water tight, polyethylene envelope preserves the factory built-in quality. When you're ready to install, the envelope is easy to remove, the Vibration Eliminator comes out bright, clean, and dry. Simplified installation instructions in each box make your job easier.



1 Lasting, leakproof performance engineered and built-in at the factory. The core is seamless, corrugated tin-bronze tubing, quality controlled through every manufacturing stage. This copper-tin alloy is specially engineered to stand up under vibration while carrying gases and liquids under pressure. Because the core is *seamless*, there are no joints or laps where leaks can start.

For extra strength and durability, the core is covered with bronze wire braid securely brazed in place. Sizes through 2" have a single wire braid covering, larger sizes a double braid covering for added strength.

Before it's shipped, the final assembly is pressure tested, oven dried, and sealed in a plastic envelope to keep out dirt and moisture.

3 You know what you get when you insist on "American Vibration Eliminators" marked on the carton and "American" stamped on the ferrule of the assembly. To get quality—look for "American."

American Vibration Eliminators are sold by leading distributors everywhere. For descriptive folder of standard sizes with installation instructions, write to The American Brass Co., American Metal Hose Division, Waterbury 20, Conn. In Canada: The Canadian Fairbanks-Morse Company, Ltd.

30191



Circle No. 22 on Reader Service Card

JULY, 1955 • COMMERCIAL REFRIGERATION

dent. He previously founded and served as executive secretary of both the Refrigeration Supplies & Parts Manufacturers' Association and the National Refrigeration Supply Jobbers' Association.

John Van Wagoner has assumed new responsibilities in the advertising department of Wolverine Tube. Formerly Wolverine's sales representative in Phila-



C. P. Whitlock J. Van Wagoner

delphia, he has been replaced there by **C. P. Whitlock**, who before this appointment had been branch manager of Downs-Smith Brass & Copper Co., Philadelphia.

Thomas W. Kindred has been appointed sales representative for



Refrigeration Appliances, Inc., to cover the states of Oklahoma, Texas and Louisiana. Kindred has his own consulting engineering firm

in Dallas. Prior to this he was sales engineer for Minneapolis-Honeywell in Louisiana, Mississippi and Texas for three and one-half years.

Theodore B. Focke, president of National-U.S. Radiator Corp., has announced the election by the board of directors of the following officers for this new corporation which came into existence on April 1. **Carroll M. Baumgardner** is senior vice president

for sales; **Louis N. Hunter** is senior vice president for engineering and research, and **Howard B. Steggall** is senior vice president for manufacturing. **John C. Haas** and **F. M. Swartz** are vice presidents for manufacturing; **Edmond J. Grady** is vice president of the Pacific Steel Boiler Div.; **Marion I. Levy**, vice president for the Viking Div., and **J. Roy Knox**, vice president for the heating and air conditioning division. **Ralph W. Bolsinger** has been elected secretary; **John G. dePass**, assistant secretary, and **B. C. Straub**, comptroller. **L. L. Hotsenpiller** has been named executive assistant to the president.

Earl C. Ramsey, administration staff member for the last four years, has been named purchasing agent for the Detroit plant of Kelvinator Div., American Motors Corp.

Richard W. C. Barr has been appointed manager of the Boston branch for



General Controls Co. Barr comes to General Controls from White-Rodgers Electric Co., Inc., where he served as a sales correspondent.

Earlier, Barr served the same company as sales engineer in Long Island City and New York City.

Thomas S. Parker has been appointed to the service department of the Trane Co. Before joining Trane, Parker had a number of years of experience with a major air conditioning firm as a field service engineer.

A. Migliaro has been appointed public information director of the Air-Conditioning and Refrigeration Institute. The appointment is part of the Institute's expanded

public relations program. **Migliaro**, who was on the editorial staff of the Times-Herald at the time of its merger with the Washington Post, had formerly worked for the Fairchild Publications.

Peter J. Dalton has joined Worthington Corp. as product



manager of the Air Conditioning and Refrigeration Div.'s packaged products section. He will be headquartered at Harrison, N.J.

Dalton previously served as vice president and general sales manager of the Davison Distributing Co., Detroit.

William F. Otto, who has been with Revere Copper and Brass Inc. since 1936, has been appointed manager of the company's New York District sales. His appointment fills the vacancy caused by the death of Daniel J. Finucane. **Harold F. Relyea** has been appointed assistant manager of New York District sales; **D. J. Spillane** has been named assistant sales manager—merchandise, and **Francis X. Hart** has been promoted to the position of credit manager and office manager, both for that office.

Frank J. Scire has been appointed chief engineer of the air conditioning division of the



Mitchell Mfg. Co., Chicago. Scire will supervise engineering for room air conditioners, central systems, and dehumidifiers.

He has been with the Mitchell company since 1953. Prior to that, from 1950 to 1953, he worked on refrigeration and air con-

ditioning in the casualty and automotive department of Underwriters Laboratories, Chicago.

B. S. Williams has been appointed vice president and general sales manager of Brownell Associates, Inc., New York City. Brownell specializes in equipment for air conditioning, refrigeration and heating systems and is the exclusive major distributor in the

northeastern United States of heat transfer products manufactured by Refrigeration Appliances, Chicago. Williams will be in charge of sales in the New England states, New York State and northern New Jersey.

Walter L. Berdahl has been appointed advertising manager of Connor Engineering Corp., Danbury, Conn. Prior to joining the Connor Corp. he was assistant

promotional art director of Famous Artists Schools, Inc. and also with Burndy Engineering Co.

William J. Darragh has been appointed manager of the General Controls Co. New England District office in Hartford, Conn. Darragh joined General Controls' Newark branch in 1950 as a warehouseman

and was promoted to sales engineer in 1952. A year later he was named manager of the company's Boston branch.

Donald J. Harrington has been appointed manager of marketing for the General Electric Co.'s Appliance Control Dept. in Morrison, Ill. Harrington is presently manager of specialty capacitor sales for G.E.'s Capacitor Dept. at Hudson Falls, N. Y. In his new post, Harrington will have complete responsibility for the marketing and sales of the department's lines of controls for the appliance and home heating industries.

Robert V. Main has been named to the newly created post of manager of manufacturer sales at Viking Air Conditioning, Cleveland. Main has been sales manager of Viking's blower division for the past two years. As head of manufacturer sales, Main directs the nation-wide sales of Viking products to manufacturers of heating and cooling equipment.

Frank Wedge has been named chemical products manager in the general sales department of Ansul Chemical Co. He will direct sales of such chemicals as sulphur dioxide, methyl chloride, the glycol ethers and the hydroquinone ethers. Wedge will also undertake

PAUL SHIRK
REFRIGERATOR SERVICE
720 YALE AVE., FRESNO, CALIF.

October 21, 1954

Highside Chemicals Company,
Clifton, New Jersey.

Gentlemen:

For a long time I have meant to let you know how much I appreciate your product "Thawzone".

I was instrumental in getting a local refrigeration supply house to stock Thawzone beginning in 1953. Since then I have added Thawzone to probably over one thousand sealed and open refrigeration units. As of this time I have not seen one case of trouble which can be traced to Thawzone.

My bottle of Thawzone suffices for a large stock of dryers which I do not have to carry and, as your ads say, gets plenty quick results. It is rather gratifying to be able to do a difficult job easily, quickly and permanently. Without Thawzone I would not feel nearly so sure of the results I could accomplish.

Very truly yours,
Paul Shirk

**HIS
STANDARD
DRYING
PROCEDURE:
CAREFUL
WORKMANSHIP
AND
THAWZONE**

THAWZONE SAVES VALUABLE TIME

You know from experience that other methods usually need a considerable amount of time in order to clear up moisture. That's NOT the case with Thawzone, since it travels quickly throughout the entire system, searching out all moisture and DESTROYING it. This action takes minutes . . . not hours.

The use of Thawzone not only saves your valuable time, but avoids annoying call-backs due to recurring moisture conditions. At the same time, Thawzone neutralizes acids formed by the constant breakdown of oil.



1. Actually destroys moisture . . . not a mere anti-freeze.
2. Scavenges oxygen . . . the only product that eliminates this corrosion-causing chemical.
3. Cannot cause pressure drop.
4. Cannot clog with oil.
5. Does not release moisture when temperature changes.
6. May be used in open or hermetic units containing "Freon", methyl chloride, methylene chloride, or isobutane.
7. Costs only about 8 cents per lb. of refrigerant treated. Used in small amounts.

THAWZONE®

The Only Product That DESTROYS Water
and Reaches ALL of it

You can use Thawzone in practically any "Freon" or methyl unit. Your wholesaler has Thawzone. Phone him now. Highside Chemicals Company, 4 Colfax Avenue, Clifton, N. J.

development of an overall chemical marketing plan for Ansul. He has been manager of commercial chemical development for Ansul since last June.

Appointment of **H. A. Wiley, Jr.** as manager, belting and packing sales, Quaker Pioneer Rubber Mills, Div. of H. K. Porter Co., Inc., San Francisco, has been announced by G. A. Dauphinais, vice president and general manager. Wiley was formerly associated with one of the major eastern rubber companies in both production and sales engineering. He came to Quaker Pioneer in 1950 as a production department member.

Dr. Augustus B. Kinzel has been elected vice president—research of Union Carbide and Carbon Corp., succeeding Dr. George O. Curme, Jr., who is retiring as vice president but will continue as a director. Dr. Kinzel has been actively engaged in research work with the company since 1926.

Robert L. Anderson has joined the market research department of the general sales department at Rheem Mfg. Co. He will head market research activities on Rheem plumbing and heating products. Prior to joining Rheem, Anderson was manager of markets and research of Admiral Corp.

George R. Metzendorf has been elected a vice president of Blast Freeze Corp., Park Ridge, Ill., in charge of manufacturing. He formerly held a similar position with McCray Refrigerator Co.

Jim and Ned Marshall of the J. N. Marshall Co., Denver, will act as district sales managers for Oasis water coolers and air driers in the Rocky Mountain states. **Tom Reeves**, also a member of the firm, will assist the Marshall brothers in sales.

SIL-FOS

master joiner of NON-FERROUS METALS



KEWANEE-ROSS CORP., Div. of American Radiator & Standard Sanitary Corp. use SIL-FOS in making ROSS Heat Exchangers. Here copper shell is torch brazed into bronze hub—31" around in only 5 to 6 minutes.



FEDDERS-QUIGAN CORP., use a lot of SIL-FOS 5 in assembling their FEDDERS Room Air Conditioners. Here 3 rows of return bends (40 joints) are gas-air brazed to condenser tubes at one time in less than 1 minute.

Yes, SIL-FOS has won the confidence and preference of thousands of manufacturers for joining brass, bronze, copper etc. because this low-temperature silver brazing alloy consistently makes joints as strong as the parent metals—at surprising speed and low cost.

The silver content does it—just enough silver to give SIL-FOS and SIL-FOS brazed joints these vital advantages:

LOW FLOW POINT—that cuts down heating time, labor and cost.

EXCEPTIONAL FLUIDITY—that assures instantaneous and complete penetration over the entire joint area for maximum strength, plus liquid and gas-tightness.

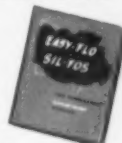
AMPLE DUCTILITY—to withstand all stresses and strains of vibration, shock and temperature changes the parent metals themselves will take.

HIGH CONDUCTIVITY—of electricity and heat.

HIGH RESISTANCE—to corrosion.

BULLETIN 20 may mean a lot of \$\$\$\$ for YOU

It gives the SIL-FOS story in full. Write for a copy today.



Full technical and practical assistance is always available to users and prospective users of SIL-FOS without obligation.



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DETROIT, MICH.
LOS ANGELES, CALIF.
TORONTO, CANADA
MONTREAL, CANADA

ASK YOUR PROSPECTS:

**Are you throwing
away 85¢ out of
every dollar you
spend for ICE?**



**YOU CAN SHOW THEM HOW TO CUT ICE COSTS
UP TO 85% WITH THE ALL-NEW, DOUBLE-DUTY**

Crystal Tips or Chips **AUTOMATIC ICE MAKER**

Model B-200



YOU CAN SHOW YOUR PROSPECTS how to save hundreds of dollars and get better quality ice by installing the all-new, 2-in-1, Crystal Tips or Chips Automatic Ice Maker. It pays for itself while the owner enjoys the convenience of a constant, full supply of both cube and chipped size ice. Operating costs are only a few cents a day for water and electricity.

ALL THE BEST FEATURES, plus proved dependability and economy are built into the Model B-200. Its versatility, compactness and smart design simplifies the selling job. Produces large, solid, individually-frozen tips—over 3,700 of them daily, or, by the flip of the switch, 15,000 quick-cooling chips. Owners say that the less than six square feet of floor space occupied by their B-200 Crystal Tips Ice Maker is the most profitable floor area in their establishments. Investigate its profit possibilities for you.

AMERICAN AUTOMATIC ICE MACHINE CO.

1793 Fourth Street N. W., Faribault, Minn. ★ A subsidiary of McQuay, Inc., Manufacturers of Heat Transfer Equipment Since 1923

Circle No. 25 on Reader Service Card

JULY, 1955 • COMMERCIAL REFRIGERATION

Year 'round profit **with Janitrol** **summer cooling** **winter heating**

combine cooling with heating...

Each year, more and more new homes are being equipped with year 'round conditioning. Modernizing old homes with the addition of central cooling is another fast growing market. With the Janitrol cooling line, you have quality-engineered equipment designed for fast-simplified installation in new or old homes.

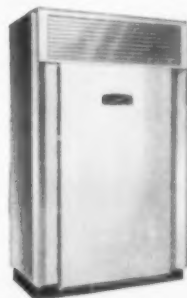
Six models of Janitrol 2, 3 and 5-ton units meet most cooling load requirements. There are also 8, 10 and 15-ton models for larger homes. The full hermetic-sealed refrigeration system is warranted for 5 years.



install commercial cooling...

Build your profits by keeping busy all year 'round with commercial air conditioning. These Janitrol packaged conditioners, sized from 2, 3, 5, 8, 10, 15 tons, are completely self-contained in attractive cabinets. Free-standing installation requires only attachment to electricity, water and drain. Adjustable, 4-way outlet louvers permit draft-free cooling.

The 5, 10 and 15-ton models have twin cooling circuits, designed so you can sell 2-stage operating economy and comfort performance. Single-stage models are available in 2, 3, 5 and 8-ton sizes.



get space saver cooling jobs...

Janitrol 2 and 3-ton horizontal units enable you to make installations not convenient with upright models. Units floor supported or suspended can be located in the attic or crawl space. Can be used as unit air conditioners commercially or in residences with an accessory blower package, or in combination with a forced air heating system which has sufficient blower capacity.

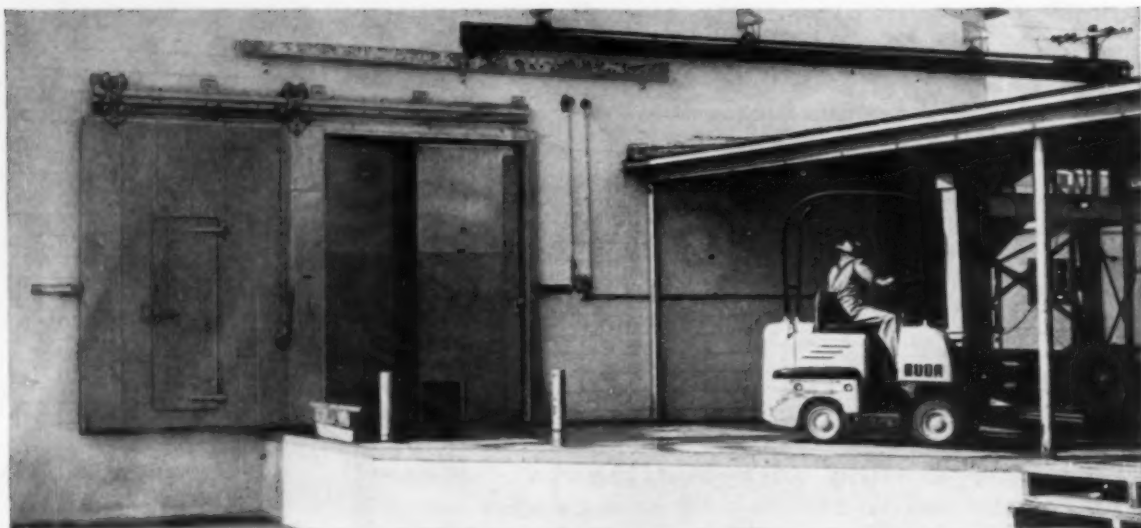


WHOLESALE—CONTRACTORS

Write for facts about air conditioning
profit opportunities in your area.

Janitrol
HEATING AND AIR-CONDITIONING
DIVISION

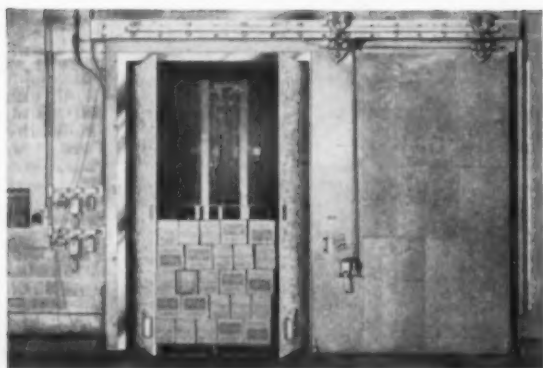
SURFACE COMBUSTION CORPORATION • COLUMBUS 16, OHIO • In Canada: Alcor Simpson Ltd., Toronto 13



No wasted platform space

Jamison Horizontal Sliding Cold Storage Doors

- conserve floor space
- give tight seal
- permit power operation



Doors for large openings easily supported



Wicket door for personnel passage

Equipped for power operation with remote control



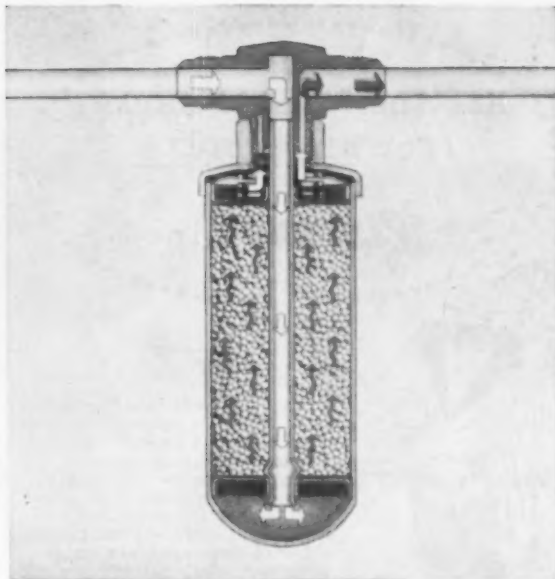
For help on any cold storage door problem, consult your architect or write to JAMISON COLD STORAGE DOOR Co., HAGERSTOWN, MD., U.S.A.



More JAMISON Doors are used by more people than any other Cold Storage Door in the world.



The pink color in the Dry-Eye Connector window changes to blue when T-Flo Cartridge removes excessive moisture.



Note path of refrigerant through uniformly round pellets of Andrite in the T-Flo Dry-Eye Cartridge.

Dry-Eye System tells at a glance if refrigerant is wet or dry



Once the Ansul Dry-Eye System is installed you can replace the T-Flo Cartridge without breaking the line.

Takes the guesswork out of refrigerant servicing . . . controls moisture, removes acid

No more guessing—now you can tell scientifically if the refrigerant is wet or dry. If the Dry-Eye Connector window shows blue, the equipment is in a safe operating condition. If the window shows pink, excessive moisture is present. To remove the moisture, simply change the T-Flo Dry-Eye Cartridge. That's all there is to it.

Andrite, the drying agent used in the T-Flo Dry-Eye Cartridge, is superior to all other popular desiccants in the deep drying range. This is the range which determines the quantity of desiccant to be

used. As for acid removal, Andrite will pick up 4.5% of its weight in acid when completely saturated with water. The extraordinary drying capacity of the T-Flo Dry-Eye Cartridge allows you, in many cases, to install smaller driers than the ones you are now using.

Test-try the Ansul Dry-Eye System on one of your "problem" units. See if it doesn't make servicing easier, more profitable. Contact your local Ansul wholesaler for a supply of Dry-Eye Systems. **ANSUL CHEMICAL COMPANY**, Dept. D-22, Refrigeration Div., Marinette, Wisc.



Circle No. 28 on Reader Service Card

Hit the "Small" Market
for Big Profits
with the
Lipman Line



There's big profit in selling the small tavern or restaurant on the advantages of a Lipman Ice Boy. The small operator can get enough ice tips for his needs—when he needs them—with either the LC-25 or LC-40 Ice Boy. And what's more—he can get either of these machines for an investment that's within his reach—less than the cost of a refrigerator, for instance. Start cashing in on Ice Boy sales to the small market in your area. For further information on the complete Lipman Line, write Lipman Division, Yates-American, Beloit, Wisconsin.

**LIPMAN ICE BOY
MODEL LC-25**

Fits right in under the bar — delivers up to 1,000 King Size ice tips per day—and stores enough for over 670 servings. 37½" high, 28½" long, and 24" deep. Equipped with the famous Dial-a-size Control Unit that lets operator dial the size ice tip he wants.



LIPMAN ICE BOY MODEL LC-40



For the larger bar, restaurant, or cocktail lounge. Slightly larger than the LC-25—but delivers more ice tips. Up to 1700 per day, if needed. And storage space holds over 900 ice tips to cope with rush hours. Dial-a-size Control Unit to select the size ice tip needed.

LI-505



...a division of **Yates-American**

Circle No. 29 on Reader Service Card

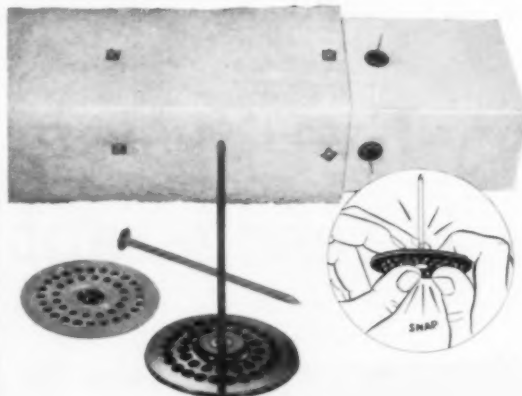
2 New products

eliminate waste time when
anchoring insulation hangers

① TUFF-BOND QUICK-SET adhesive dries in one hour



Insulation men no longer have to sit around waiting for adhesive to "set" or make a trip back to complete the job, thanks to amazing new Tuff-Bond Quik-Set adhesive. After just one hour, Quik-Set makes a firm bond on smooth brick, cement, steel for practically any purpose. Resistant to moisture and alkalies, its temperature range extends from 30°F below zero to 250°F above.



② TUFF-WELD nylon hangers less bulky

These new lightweight hangers eliminate the need for bulky boxes when working on ladders or scaffolds . . . dozens are carried right in the pocket . . . the spindle is snapped into the nylon base plate just before using. (Hangers are also available factory-assembled.) Tuff-Weld nylon hangers mean great savings in labor, freight charges and warehouse space. They are exceptionally strong and resistant to practically all chemicals.

Wt. — 202 lbs.

Wt. — 64 lbs.



Here's the space occupied by 3000 old-fashioned, bulky type insulation hangers and the cement needed to apply them.

Here's the small space occupied by 3000 new Tuff-Weld insulation hangers and Tuff-Bond Quik-Set adhesive used to apply them.

Write today for literature and prices

GOODLOE E. MOORE

INCORPORATED

DANVILLE, ILLINOIS

Circle No. 30 on Reader Service Card

JULY, 1955 • COMMERCIAL REFRIGERATION



MADE *for each other...*

to do a better job for you!

**CHASE® Type L Copper Tube and
Wrought Solder-Joint Fittings**

Accuracy is the keynote in Chase's manufacturing process for Type L copper tube and wrought solder-joint fittings for refrigeration and air conditioning. Inside and outside diameters are "right on the button." Metal of tube and fittings is identical. They fit each other perfectly—expand and contract *as one unit!* They're smoother, flawless! Straight lengths of tube can be obtained capped for cleanliness.

Your Chase wholesaler stocks coils and straight lengths of Type L copper tube in a wide range of sizes, and individually packaged coils of Chase extra-soft copper refrigeration tube. He also has Chase wrought solder-joint fittings in many styles and sizes. Order today!



Chase 

BRASS & COPPER CO.

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

The Nation's Headquarters for Brass & Copper

Albany†	Cincinnati	Houston	Newark	Rochester†
Atlanta	Cleveland	Indianapolis	New Orleans	St. Louis
Baltimore	Dallas	Kansas City, Mo.	New York	San Francisco
Boston	Denver	Los Angeles	Philadelphia	Seattle
Charlotte†	Detroit	Milwaukee	Pittsburgh	Waterbury
Chicago	Grand Rapids†	Minneapolis	Providence	(†sales office only)

Circle No. 31 on Reader Service Card

for Peak Performance
BUY SPORLAN
SOLENOID VALVES
for Sporlan offers you...

THRU and THRU QUALITY BUILT COILS

- ① Extra heavy winding provides reserve protection against burn out.
- ② Layer wound magnet wire, plus cotton thread spacing for maximum insulation.
- ③ Twice dipped varnish-and-baking provides complete impregnation.
- ④ Final protective sealer dip and bake assures moisture-proof seal.

plus

PROVEN SPORLAN ENGINEERED COMPONENTS

- ⑤ Extremely simple design... few parts.
- ⑥ Sturdy... take-apart construction.
- ⑦ Floating type stem and plunger assembly.
- ⑧ Tight closing, pin and seat polished to a super finish.

Any size, any refrigerant or connections...SPORLAN has a Solenoid Valve to Fit Your Job!



SPORLAN



Sporlan

VALVE COMPANY

7525 SUSSEX AVE.
 ST. LOUIS 17, MISSOURI

EXPORT DEPT.: 89 BROAD ST., NEW YORK 4, N.Y.

Circle No. 32 on Reader Service Card

BUY SEVERAL SPORLAN
 SOLENOID VALVES FROM
 YOUR WHOLESALER TODAY,
 AND BE SURE OF PEAK
 PERFORMANCE ON EVERY
 SOLENOID INSTALLATION





9 Pointers to Profit with RCA 2-Way Radio

1. Customers get service in a matter of minutes. Goodwill is generated.
2. Wasted service time is reduced. Average minutes per call cut—up to 18%.
3. Considerable telephone expense saved.
4. Productive truck time is increased. 15%-20% more calls, daily, possible.
5. Service men do a more efficient job.
6. Re-routing trucks easy, as need arises.
7. Backtracking is made unnecessary. Average miles per call decreased up to 16%.
8. Radio-dispatched service attracts new business.
9. Service men like it—prevents pointless driving.

Radio is used to relay service requests to trucks on the road and to receive requests from drivers. Unusual situations are handled quickly by two-way conversations between trucks and the office.

A truck can be reached whether it's moving or parked. Regular office personnel can operate the radio—it's just as easy as your telephone. Doubling back to make calls or

stopping to telephone is unnecessary, and lost time occasioned by truck breakdowns is greatly reduced. The dispatcher has control he never before thought possible.

More and more service businesses are now tapping this new reservoir of increased profits by installing RCA 2-Way Radio. It's a natural for the refrigeration and air conditioning service field... where

minutes really mean dollars to your customers!

The compact transmitter-receiver takes less space than a spare tire. Quality parts, engineering know-how and the RCA reputation for all-out excellence of equipment assure long life and trouble-free performance, and...

Installation and service facilities of the RCA Service Company are available on a nation-wide basis.

Use handy coupon for further information.



**RADIO CORPORATION
of AMERICA**
COMMUNICATIONS EQUIPMENT
CAMDEN, N.J.

Radio Corporation of America
Communications Equipment, Dept. T-261, Building 15-1, Camden, N. J.
In Canada: RCA VICTOR Company Limited, Montreal

NAME _____ TITLE _____
COMPANY _____
ADDRESS _____ COUNTY _____
CITY _____ ZONE _____ STATE _____

- ☐ Please send reprint of article, "Air Conditioning Service Speeded by Citizens UHF Radio."
☐ Please have an RCA Communications Specialist call.

Circle No. 33 on Reader Service Card

SINCE YOU BUY TUBING BY THE POUND... How Much Does Quality Weigh?

When you specify Penn Quality Tubing or Penn Quality Fabricated Units, you actually get many plus values. These extras show up on your balance sheet through time saving inspections, rejections, and service. Check Penn's answers to some tubing questions—Ask for the names of those who already are standardizing on Penn Quality. Get the story direct just how much more quality does weigh.



WHAT IS PENN'S CUSTOM DRAWING SERVICE?

Odd tubing sizes present no problem at all to Penn Tubing Engineers. Unusual dimensions need no special handling at Penn, but are produced in the prompt Quality way. Penn's Custom Drawing Service, readily available, can help you overcome difficult tube applications.



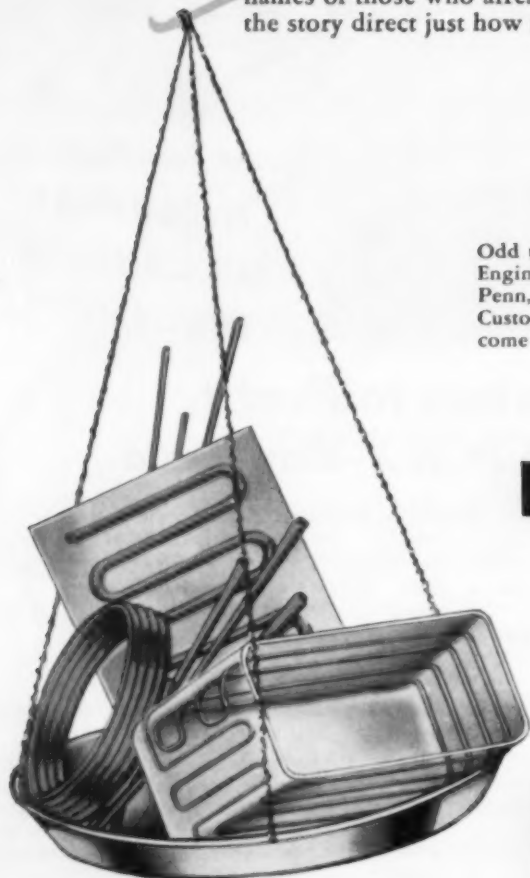
WHAT IS SKIN HARDENED TUBE?

Penn's interpretation of the term "skin hardened tube" is tempered tube with the ductility of a fully annealed tube. It has the advantage of a controlled hardness, which eliminates handling hazards of a dead, soft tube. This Penn service and knowledge allows you to fabricate shapes, yet keep the finished pattern fairly firm.



WHERE DOES PENN'S ENGINEERING SERVICE PAY OFF?

Penn's Engineering Service pays off effectively in design costs, helping maintain today's exacting production schedules, and meeting all important marketing deadlines.



Write, wire or call for additional information, informative literature, or the name of the Penn representative in your area.

**COPPER TUBE COILED • STRAIGHT • CAPILLARY
FABRICATED • FLARED • FITTED**

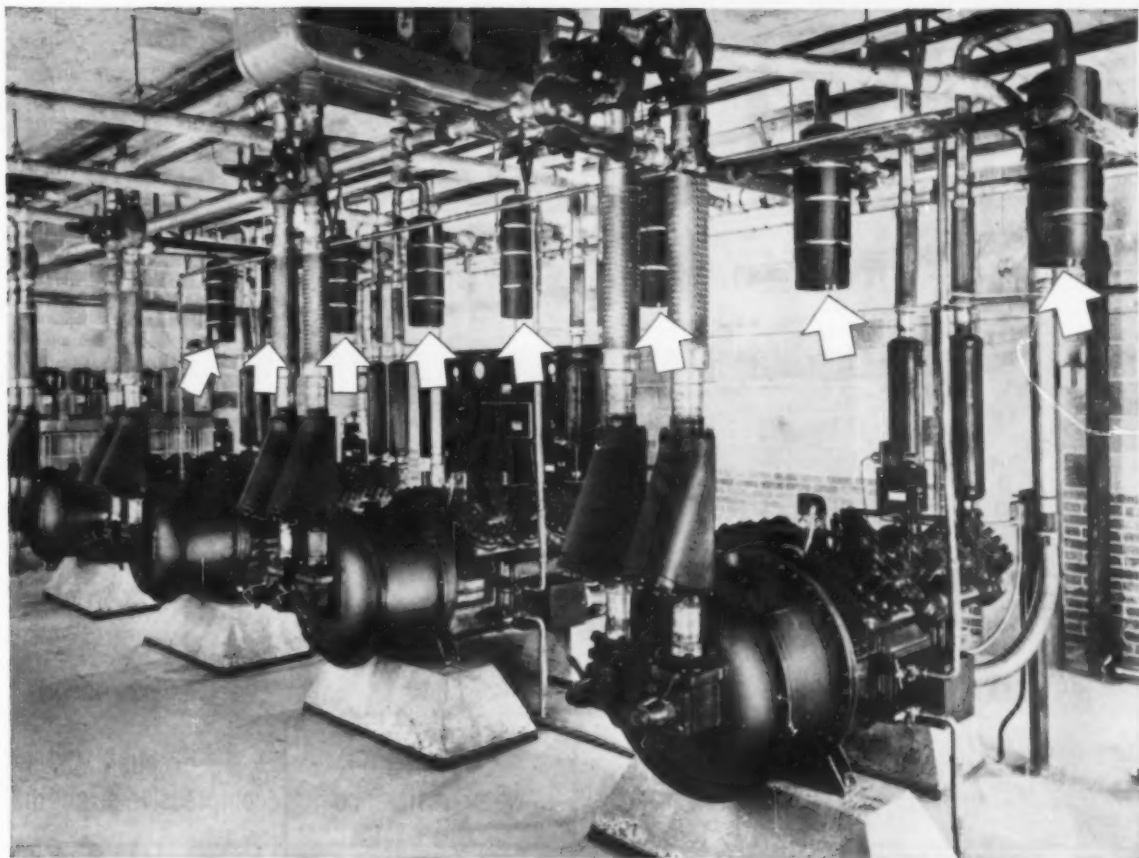


PENN BRASS & COPPER COMPANY

ERIE • PENNSYLVANIA • TELEPHONE 3-1164

Circle No. 34 on Reader Service Card

JULY, 1955 • COMMERCIAL REFRIGERATION



Temprite Oil Separators maintain high efficiency of air conditioning system at Denver Post!

Keep oil away from the low side and in the compressor where it belongs! Lower temperatures are then easily reached, the compressor operates on minimum time only, and the crankcase oil level remains constant. The refrigerant remains at its true boiling point—heat transfer is increased 15% to 20%—and the expansion valve operates more efficiently, free from oil, dirt and corrosion. Do it all with a Temprite Oil Separator.

The Denver Post air conditioning system, installed by the T. C. Alexander Company of Denver, has been in operation for 3½ years, performing at very high over-all efficiency—thanks, in large measure, to eight Temprite Oil Separators (two to each 100 ton machine).



Temprite Oil Separators are available in sizes from 1/6 to 150 tons.

Temprite



Self-Contained Water Coolers



Remote Water Coolers



Carbonators



Control Valves



Instantaneous Liquid Coolers



Oil Separators



Beer Coolers

PRODUCTS CORPORATION ★ BIRMINGHAM, MICHIGAN

• AIR CONDITIONING • JULY, 1955

Circle No. 36 on Reader Service Card

TEMPRITE PRODUCTS CORP.
P.O. Box 72-B, Birmingham, Michigan

- ☐ Please send me complete data on Temprite Oil Separators
☐ Ask your representative to call

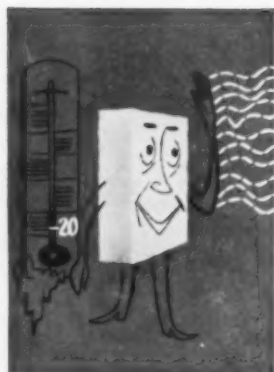
Name _____

Address _____ Zone _____

City _____ State _____

STYROFOAM

HERE'S HOW
STYROFOAM
COMPARES TO
OTHER
INSULATIONS



low "K" factor



superior
water resistance



excellent
compressive strength

	low "K" factor	superior water resistance	excellent compressive strength
STYROFOAM	✓ Permanently Low. Avg. 0.25	✓ Remains Dry and As- sures Constant "K" Factor	✓ Highest Strength- Weight Ratio of Any Insulation
INSULATION A		✓	✓
INSULATION B	✓		
INSULATION C	✓		✓

General American Transportation Corporation selects
STYROFOAM® for its permanent resistance to water and mold

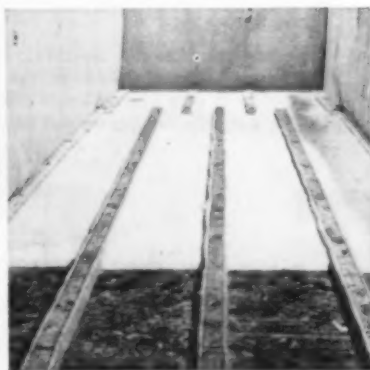
When this leading company planned the building of new refrigerator cars they looked for an economical, lightweight insulation that would assure long service life through permanent moisture, mold and rot resistance. Styrofoam (Dow expanded polystyrene) was the perfect answer.

Installation proved fast and economical because Styrofoam is light, clean, easy to handle and can be fabricated with ordinary tools. Hundreds of these cars are used by Swift and Company and other hundreds as GATX General Service Lease Cars.



Above: One of the refrigerator cars made by General American Transportation Corporation for use by Swift and Company.

Right: This interior view shows Styrofoam installed on the floor of a refrigerator car.



...offers you a combination of properties
unmatched by any other
low-temperature insulation!



light weight	ease of handling	superior resistance to vermin and decay	low installation cost
✓ Lightest Of All Rigid Insulations. Avg. Density, 1.7 lbs. per cu. ft.	✓ Pleasant—Fabricates Easily with Common Tools. Doesn't Crumble	✓ Has No Food Value	✓ Lowest Cost, Too, Per Year of Service
✓		✓	✓
✓			✓
			✓

THESE ARE JUST A FEW LEADING COMPANIES THAT HAVE CHOSEN STYROFOAM

The Best Foods, Inc.; The Goebel Brewing Co.; Southern Dairies, Inc.; General American Transportation Corporation; General Electric Company; Norge, Division of Borg-Warner Corporation; Kelvinator Division of American Motors Corporation; New York Central System; Swift and Company; Oscar Mayer and Company.

Dow will send you further information on Styrofoam, free, upon request. Please specify if you want general information on Styrofoam or detailed information on its use in low-temperature work, as a perimeter insulation, or pipe covering. Write Dow Plastics Sales Dept. PL 575R-C THE DOW CHEMICAL COMPANY, Midland, Michigan, or contact your Styrofoam distributor: *The Putnam Organization, Inc.,*

Chicago, Ill. • Seward-Kauffman Corp., Elkhart, Ind. • Styro Products, Inc., Kansas City, Kansas • Atlantic Foam Products Co., Ipswich, Mass. • Par-Foam, Inc., Detroit, Michigan • Edwards Sales Corp., Minneapolis, Minn. • Floral Foam Products, Midland, Michigan • Styro Sales Co., New York City • William Summerhays Sons Corp., Rochester, N. Y. • G. & W. H. Corson, Inc., Plymouth Meeting, Penn. • The Emerson Co., Houston, Texas • Utah Lumber Co., Salt Lake City, Utah • S & S Sales Corp., Milwaukee, Wis. • Durofoam Insulation, Ltd., Kitchener, Ontario, Canada • Western Foam Products, Inc., Colma, Calif.



you can depend on DOW PLASTICS



Circle No. 35 on Reader Service Card

6 good ways to make **TRUCK REFRIGERATION** pay



Kold-Hold plates used in these trucks for delivery of Esskay Quality Meat Products keep the wide variety of luncheon meats as fresh as when they are packed. They keep the truck bodies clean, dry, sweet and odorless providing economical refrigeration for the meat products day after day.

A large midwestern dairy combines a blower coil with a Kold-Trux automatic system to refrigerate several wholesale milk trucks. Kold-Trux proves satisfactory in use with blowers, Serpentine Quick-Action plates, depending on the requirements.

United Farmers of New England employs Kold-Hold Hold-Over plates in its refrigerated wholesale trucks. Built by Boyertown Body Works, the insulated body is brought down to 35 degrees and in eight hours on the route, the temperature reaches only 48 degrees. Truck capacity is 5,000 quarts of milk.

Both ice cream and milk are refrigerated in the same truck by Hage's Ltd., of San Diego, California, using one Kold-Hold Hold-Over plate in the milk compartment and 3 plates in the ice cream compartment. This keeps these products in perfect condition throughout the day's delivery runs. Body by Aluminum Body Corporation, Vernon, California.

Here are 6 proven systems of truck refrigeration that not only pay their own way but help increase your profits, too:

1. Kold-Trux Mobilmatic units with Kold-Hold Hold-Over plates;
2. Kold-Trux Mobilmatic units with Kold-Hold light-duty plates;
3. Kold-Trux Mobilmatic units with Serpentine Quick-Action plates;
4. Kold-Trux Mobilmatic units with Hydro-Pack Blower;
5. Kold-Hold plates with mounted compressor;
6. Kold-Hold plates with make-and-break assembly.

Which way is best for you? Our Kold-Hold engineers will be glad to work on your individual problem with you and help you select the system that is sure to make your truck refrigeration pay.

For the answer to your truck refrigeration problem, write for the new 16 page Kold-Trux Catalog No. KT-155.



Look to Kold-Hold for the latest developments in Truck Refrigeration

KOLD-HOLD®
DIVISION

TRANTER MANUFACTURING inc.,
503 E. Hazel St., Lansing 4, Michigan

In addition to famous **Quickube Trays** Frigidaire now
offers a new kind of ice service—**Quick-Cubelets**



they fit even smallest glasses



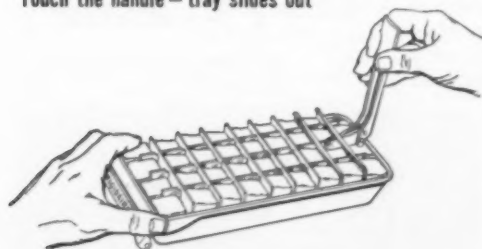
See how easily Cubelets fit juice glasses or even small necked containers. They cool liquids faster, too. And each new Quick-Cubelet Tray makes 36 Cubelets half the size of ordinary ice cubes. Trays are golden anodized aluminum.

*This is the Tray
Arthur Godfrey Recommends!*

Actual size of new ice Cubelets



Touch the handle — tray slides out



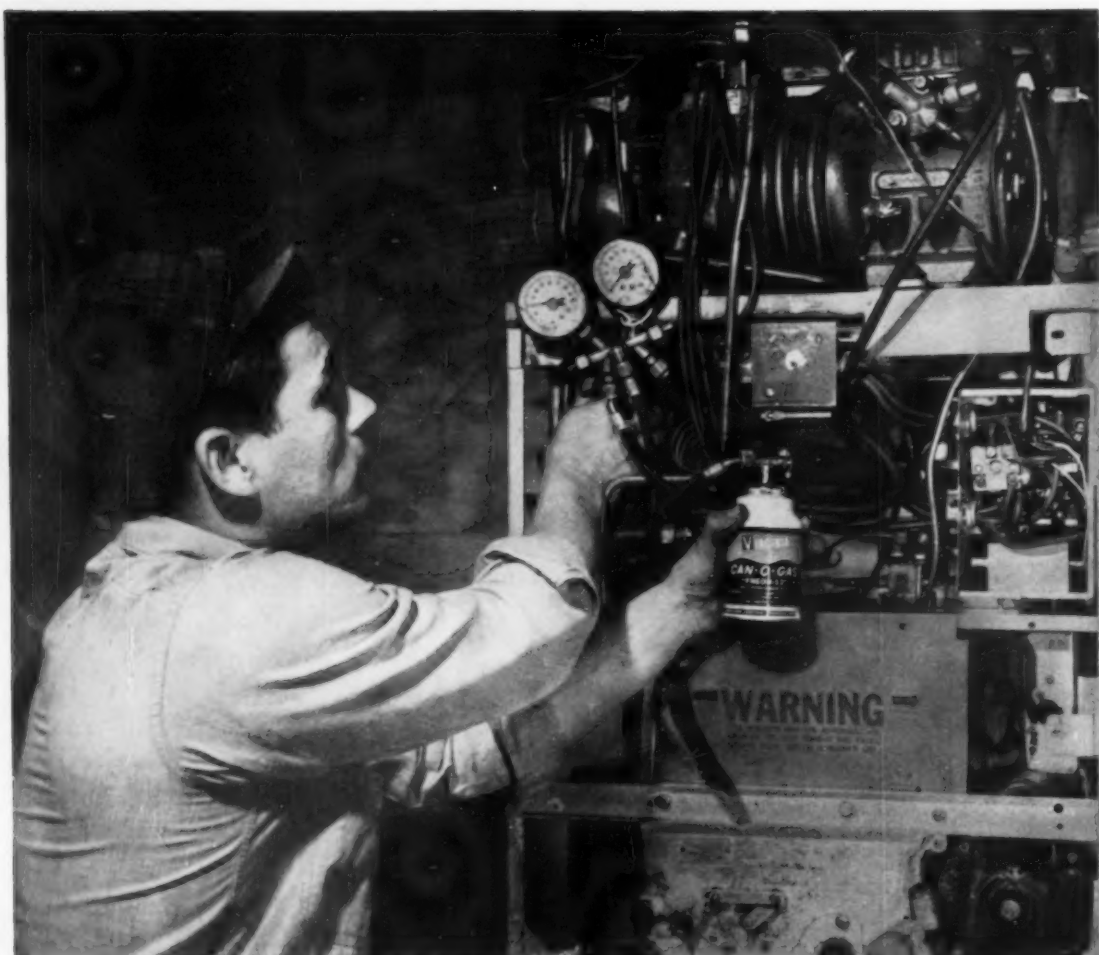
Lift the lever — cubes (or Cubelets) pop out

Both Quickube and Quick-Cubelet Trays
have the same sales-making double-easy action

Handy to carry on service calls and easily demonstrated. Quickube and Quick-Cubelet Trays are specially good fast-sales items! They're great for bringing people into your store, too, and really put a finishing touch on reconditioned refrigerators. Both the tray handle and lever are really exclusive and the price on these trays is right. And like all genuine Frigidaire Parts, they're warranted for lasting satisfaction. So see your Frigidaire Parts Distributor for your order, today . . . there's one near you.



Frigidaire Precision-Built Parts
and Accessories



Easiest, quickest way to add a charge ... use Can-O-Gas

The service and maintenance trades have discovered that the popular refrigerants in throw-away cans are ideal (1) for charging water and beverage coolers; (2) freezer cabinets and automotive air-conditioning systems. They are especially suited for adding critical charges. No deposit—no empties to return. Can-O-Gas is precision filled to assure high quality and low moisture. Detachable opener tools (illustrated below) available at small cost.

Four Can-O-Gas refrigerants are now available. Sulfur Dioxide and "Freon-114"* come in 16-oz. cans; "Freon-12"* in a 15-oz. can; and "Freon-22"* in the new 2-lb. size. "Virginia" also makes Extra Dry Esotoo, the refrigeration grade SO_2 -V-Meth-L, methyl chloride specially prepared for refrigeration use—and distributes a complete line of Kinetic Chemical's "Freons." These are available in all popular cylinder sizes.

Ask your wholesaler for these fine products, or write Refrigeration Division, VIRGINIA SMELTING CO., Dept. 64, West Norfolk, Va.

*T. M. Reg. U.S. Pat. Off., Du Pont's

VIRGINIA
Chemicals

ESOTOO • KINETIC CHEMICAL'S "FREON" REFRIGERANTS
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSTITE TAPE
SUNISO REFRIGERATION OILS

Available in Canada and many other countries



"Fitzall" valve used on 15 and 16-oz. cans.



"Fitzall" valve used on 2-lb. can.



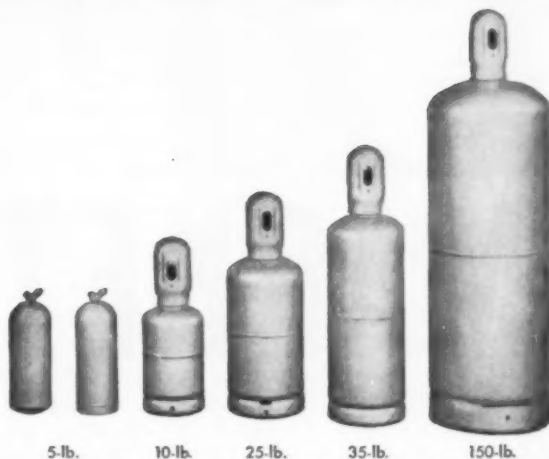
Clip-On opener is perfect where valve is not needed.

Circle No. 39 on Reader Service Card

JULY, 1955 • COMMERCIAL REFRIGERATION

**DON'T
SETTLE
FOR LESS**

use
Prest-O-Lite
Trade-Mark
**CYLINDERS FOR
REFRIGERANTS**



- ✓ Rugged, sturdy construction
- ✓ Uniform sidewall thickness
- ✓ Lightweight—easy to handle
- ✓ Finest workmanship
- ✓ Best appearance
- ✓ Tested far beyond all codes
- ✓ Extra years of trouble-free life
- ✓ They're economical!

You are *sure* that your refrigerant gas containers will give you many years of dependable service—and save you extra dollars—when you own PREST-O-LITE cold-drawn cylinders. They're built by the company which has been the largest manufacturer and *user* of compressed gas cylinders for almost half a century. In each step of design and fabrication the ultimate in gas containers is achieved—and this skill and experience is passed on to you with every PREST-O-LITE cylinder you get. It's no wonder that refrigerant cylinder buyers who have compared feature for feature have found out they are getting the greatest value with top-quality PREST-O-LITE cylinders.

Available in size, ranging from 5-lb. to 150-lb. capacities—with valve, and cap on all but 5-lb. styles. A few of the popular squat-type cylinders are shown above. You'll like their good-looking appearance, with glossy metallic bronze finish. **WRITE TODAY** for full information and prices—select the PREST-O-LITE cylinder that fits *your* needs exactly.


MADE BY

Linde

"Prest-O-Lite" is a registered trade-mark of Union Carbide and Carbon Corporation.

LINDE AIR PRODUCTS COMPANY

A DIVISION OF UNION CARBIDE AND CARBON CORPORATION


30 East 42nd Street  New York 17, N. Y.

Offices in Other Principal Cities

In Canada: LINDE AIR PRODUCTS COMPANY

Division of Union Carbide Canada Limited, Toronto

Circle No. 82 on Reader Service Card



KRAMER

UNICON

FOR

SUPERMARKETS

WRITE NOW
FOR
BULLETIN U-291

**ONE UNICON
serves up to 16 compressors
WITHOUT A DROP
OF WATER***

**UNICON is a Remote-Type Air-Cooled Condenser*

KRAMER TRENTON CO. • Trenton 5, N.J.

Try an **AMPROBE**
on the job for 2 weeks

FREE



The first time you try it, you'll discover just how useful the Amprobe snap-around volt-ammeter can be—and how much easier it makes your job!

We want you to put the Amprobe to the toughest test of all—use it at *your particular job*. See how this one accurate pocket tester meets *all* your testing needs—measuring voltage and current instantly without shutting down equipment. You'll find the Amprobe worth its weight in gold when it comes to eliminating guesswork. And the Amprobe is invaluable in assuring a correct installation of equipment, in better servicing, and in reducing complaints. Test it *free*—see how much time, money, work it saves!

For your FREE two week trial, choose any Amprobe model that fits your needs. If you find the Amprobe doesn't pay for itself any time during the trial period, on job after job, just return it without obligation. The final decision is yours to make—you've got everything to gain and nothing to lose.

Fill out the "Free Trial" form today—we'll arrange for your local jobber to supply you with the Amprobe of your choice. Then take two weeks to show *yourself* how this pocket-sized instrument cuts costs, helps you do a better job in less time. Take advantage of this limited offer today. Don't delay—mail the "Trial Application" coupon now.



AMPROBE "300"

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Same multi-range type of unit as the Amprobe "300", but designed to handle extra heavy loads—up to 600 amps and 1200 amps AC. Conductor doesn't have to be centered for accuracy, because of the exclusive toroidal-wound transformer used in these models. Comes with voltage test leads and top grain cowhide leather case.



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I'll take you up on your offer. Please have my local jobber arrange a two week FREE Amprobe trial—at absolutely no obligation to me. I am most interested in the model classification checked below:

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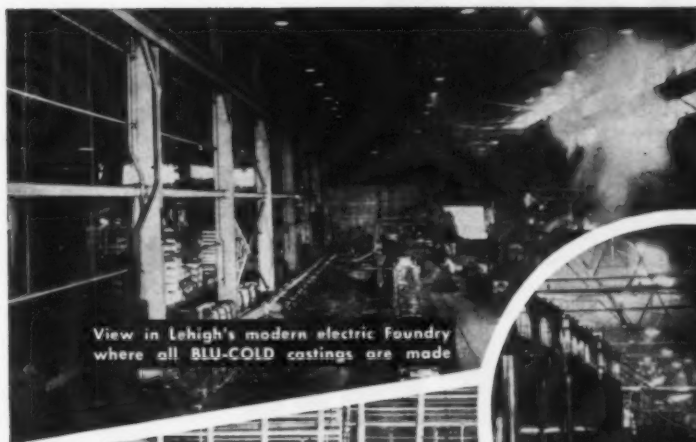
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Lehigh's ability to engage in long-range development programs — and to make so many basic contributions to the betterment of commercial refrigeration — is due to its control of fundamental manufacturing materials. An example is the premium grey iron produced in Lehigh's ALL-ELECTRIC foundry. This is the metal used in all BLU-COLD pumps to give maximum tensile strength and wear resistance to all static and moving parts. ★ This ideal production set-up, coupled with Lehigh's world-wide distribution and field testing facilities, stimulates fresh thinking, reveals basic refrigeration problems, encourages development and improvement — all to your ultimate advantage as a jobber, dealer, service engineer or manufacturer of refrigeration equipment.

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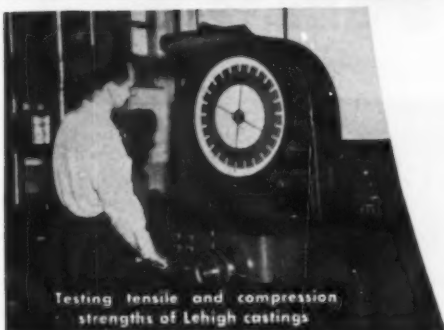
CATALOGS ON REQUEST

Lehigh BLU-COLD CONDENSING UNITS AND SYSTEMS

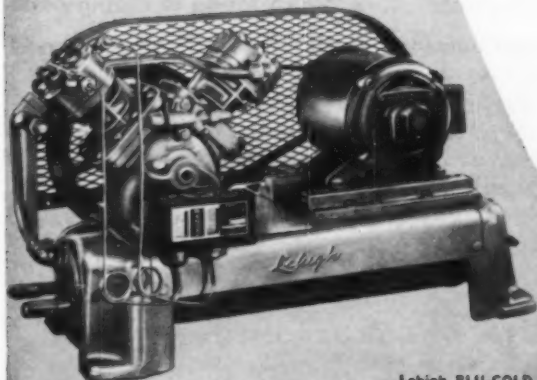
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DIVISION OF LEHIGH FOUNDRIES, INC.

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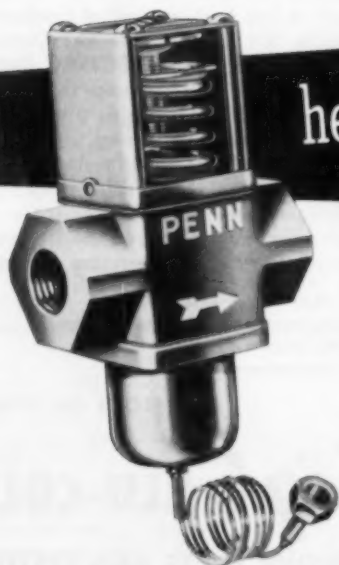
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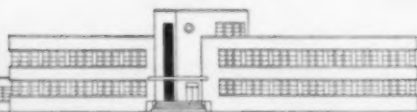


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- No valve chatter
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Add up these reasons and you'll get one answer . . . Penn water valves *stay on the job longer!* And, it's an answer proven correct in hundreds of thousands of installations. Don't settle for something "almost as good" . . . specify and install Penn water valves. Ask your wholesaler. **Penn Controls, Inc., Goshen, Indiana.**

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AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Circle No. 46 on Reader Service Card

JULY, 1955 • COMMERCIAL REFRIGERATION

IBANU'S

TRENDS · OPINIONS · REPORTS

AN ELECTRONIC "BRAIN" to aid research in air conditioning is a recent addition to the laboratories of Minneapolis-Honeywell Regulator Co. The instrument computes the relationships of diverse and changing factors such as the efficiency of insulation and wall-types, area and types of windows, inside and outside humidity and temperatures, wind velocity, and number of occupants, so that conditions as varying as those of the Arctic and the tropics may be duplicated—mathematically—in laboratory studies. Daily changes in weather, as broad as would be experienced in a year, can be taken into account by the machine in six seconds. Then the problem can be changed, such as by indicating storm windows omitted, and the same "year" may be repeated to show researchers the precise effect of the altered factor upon all of the others. Among the many practical applications of the device will be in developing improvements of heating and air conditioning controls.

INITIATING A PRECEDENT in the U. S. Army reserve program, a series of lectures and study classes on the basic principles of air conditioning and refrigeration has been launched for the 213th Company (Refrigeration), of the 300th Quartermaster Battalion, culminating with the unit's active duty session this summer. The courses, based on actual on-the-job training, are being conducted by the company's commander, 1st Lieut. Raymond Haas, who in civilian life is president of the Glo-Cold Co., an authorized Carrier service organization. The current courses are being held in the Glo-Cold Co.'s offices in Brooklyn, and will terminate when the army unit, comprised of some 18 men and four officers, goes into summer training for 15 days on Aug. 21 at Camp Lee, Va.

REFRIGERATING EGGS pays off—handsomely—says an article in the May issue of the southern edition of *Farm Journal*, which reports on a test run for the Test Experiment Station by a commercial poultry farmer, to find out how much difference cooling really did make. In three separate tests using mechanical refrigeration, an evaporative cooler, and non-cooled storage, the 644 cases of eggs produced during the four-month test period would have brought \$718 more on an "AA" market with refrigeration than without. On a Grade "A" market, selling every three days, refrigerated eggs would have brought about \$400 more than the unrefrigerated variety. The refrigerator kept eggs at 52 F, as compared to 77 F in the open storage space.

WE'RE WINNING ONE "COLD WAR", hands down. According to a study made by Minneapolis-Honeywell's International Div., two-thirds of the installations made in the free world are being handled by U. S. firms. Latin America is pacing the field, with Canada, the Mediterranean nations, Australia and South Africa following in that order. Exports of air conditioning units in 1953, the latest available, totaled some 43 thousand units, valued at more than \$13 million. Most of the installations are in commercial or industrial buildings where gains in production and worker efficiency are the chief goals—but U. S. tourists are stimulating the growth of residential air conditioning installations, as well as those in hotels, restaurants and similar commercial locations.

QUICK LICENSING of applications for UHF two-way radio equipment is made possible by the Federal Communications Commission's recent approval of RCA'S complete UHF line for district licensing for operation in the Citizens Radio Band. The approval, which covers RCA Carfone-450 mobile units and base station equipment, allows FCC district officers to grant operating licenses, instead of having them go to Washington for processing, as has been necessary up to now. The Citizens Band, extending from 460 to 470 megacycles, is the one used by air conditioning and refrigeration service trucks and other business firms in their two-way radio systems.

THIS CONTRACTOR MAKES A SPECIALTY PAY

Refrigerated Environmental Test Equipment *helps improve product efficiency*



TESTING electrically operated camera in Bell & Howell's low-temperature chamber.

CUSTOM-DESIGNED environmental test equipment is playing an important part at Bell & Howell Co., Chicago, in studies to determine whether products and components in the company's line of photographic equipment will perform satisfactorily under a wide range of temperature and humidity conditions.

The many different needs of the company's customers make it mandatory that all products meet certain pre-established standards of quality and service. All products the company makes for government use are put through a stiff series of tests, many of which are designated as "musts" before the products will be accepted. For example, the 36" aerial lens made by Bell

& Howell is checked periodically to make sure that under conditions of high humidity no condensation appears between the elements of the lens, and that the finish will resist corrosion.

This lens also must stand up under shock tests ranging from -65 F to 180 F, and repeated several times to make certain that there is no cracking or chipping of glass and no shrinking or expansion of certain integral parts. The company's N-9 camera, made for the Air Force, is studied at simulated altitudes of 50,000 feet, the studies covering not only mechanical functions but effectiveness of lubricants as well.

Since the company's equipment is sold and shipped

all over the world, cameras and projectors not necessarily intended to withstand sub-zero temperatures are subjected to these same tests, because they might be exposed to such temperatures in shipment. This is especially true of equipment that is shipped by air, since temperatures as low as -65 F and low ambient pressures may be encountered.

Central control point for all environmental testing at Bell & Howell is the mechanical laboratory. Here three units, made especially to suit the company's requirements by Murphy & Miller, Inc., Chicago, comprise the nucleus of this phase of Bell & Howell activity. Equipment includes a small environmental chamber for altitude, humidity and temperature; a walk-in temperature chamber for high or low temperatures, and a humidity chamber.

The altitude chamber is designed for a temperature range of -120 F to 200 F. Humidity is controlled between limits of 20 and 95% within a temperature range of 35 to 185 F dry bulb. The chamber is capable of simulating altitudes from sea level to 150,000 feet.

This altitude chamber, 12 cu. ft. in interior size, is served by two 5 hp condensing units connected in a cascade system, using Freon-22 in the high stage and Freon-13 in the low stage. Boiling point of Freon-13 at zero pounds gauge pressure is approximately -115 F.

A 30" x 24" viewing window allows Bell & Howell technicians to observe reactions of the equipment during any phase of the testing cycle. This window, seven panes of Thermopane thick, has an inside pane 1 1/4" thick to withstand the extreme pressure differentials encountered.

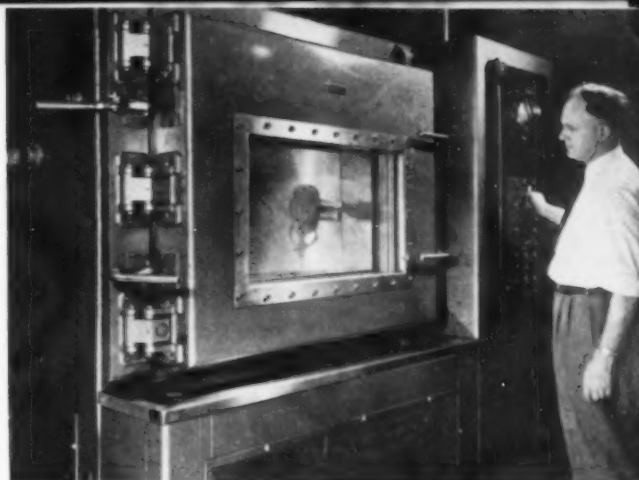
Temperature and humidity are controlled by a pneumatic type program recorder-controller, and the system is wired so that complete test programs from high to low temperature can be run without any attention from the operator. The master control system allows the operator to chart, on a plastic cam disc, the various temperature, humidity and altitude cycles required for any given test study. The cam will provide a prescribed time pattern control for as long as seven days before repeating.

In running these high-to-low temperature tests, the humidifier and wet bulb supply reservoir are automatically drained at 35 F (the cross-over point from high temperature to low temperature) and the wet bulb control is automatically disconnected from the system. Below 35 F the system operates only on dry bulb control. This same action takes place on altitude test runs, to prevent moisture evaporating and contaminating the oil in the vacuum pump.

Air circulation system on the altitude chamber involves the use of a centrifugal fan, with the fan drive motor located outside of the test chamber. The fan

Continued on page 119

HUMIDITY TESTS on paint, finishes, operating mechanisms, lenses, and electrical and electronic equipment are made in this humidity cabinet (right), which has range of 20 to 95 dewpoint. Circular door at front allows access without opening top.



SETTING SWITCHES on the program controller for altitude simulation chamber test run on operation and durability of a 16 mm motion picture camera. Two 5-hp machines enable chamber to simulate altitudes from zero to 150,000 feet.



CONTROL PANEL and program recorder (above left) for the low-temperature chamber. The 5x5x7 room is entered through door at right, and has temperature range of -120 to 200 F.



OUT OF ARCTIC test room (above right) comes this Bell & Howell engineer, his face masked to guard against freezing. Two 15-hp units serve the chamber. Insulation is 12" thick.



THIS DEALER GETS THE JUMP

DON'T *pass by that empty store*



DEALER INITIATIVE, in helping to find a suitable tenant for about half the space in this attractive shopping center, paved the way to a contract for both refrigeration and air conditioning.

SOME of the best leads for the sale of commercial refrigerating and air conditioning equipment are the *empty* spaces in office or store buildings.

Floyd I. Davison, president of Davison Associates, Inc., Toledo, Ohio, is one dealer who has dem-

onstrated the sales potentialities of unoccupied space.

"But a dealer may need to be virtually a business broker," says Davison, "if he is to capitalize on an opportunity in this category."

Perhaps the best example of how this dealer turned such an

It may be a logical location for a food market — and if you're willing to be a "business broker" you can make it the site of a profitable installation of commercial refrigeration equipment.

opportunity into a substantial sale of equipment had its beginning only a few months ago when his attention was called to the status of a beautiful new commercial building designed to be a shopping center adjacent to Toledo's exclusive Ottawa Hills residential community.

The owner of the building had designed it with the thought that it would be rented for use by about 10 or 12 luxury-type shops, each to have a frontage of about 20 feet.

But at the time that Davison came into the picture, fewer than half of the spaces had yet been rented. Other rental prospects of the type that the owner had in mind were unenthusiastic.

Davison found out the cause of that apathy.

"The rental prospects didn't want to sign leases unless at least



THIS OPEN AREA for wrapping pre-cut meat in Bellman's Market reflects a belief that customers like to have at least this stage of processing visible instead of having it done in a partitioned rear room.

one of the tenants would operate some kind of business that would draw people to the center in large numbers," he says.

Because of the kind of building involved in this case, it was obvious that a supermarket would be the best solution of the problem.

So, Davison took it upon himself to help the owner find a supermarket for a tenant.

Solving the owner's problem, of course, was only a secondary motive for the dealer's interest. What interested him most was the obvious fact that a supermarket would naturally be a large buyer of refrigerating and air conditioning equipment.

Floor Plan Redrawn

To persuade a supermarket operator to become a tenant, Davison began by redrawing the floor plan for one end of the building—about a half of its total length. Where several shops had been contemplated, he showed how they could be combined into a single area with entrance and exit doors for customers located at the front end of an arcade in the center of the structure.

Then, following standard practice in selling refrigeration to supermarkets, Davison completed his floor plans by showing a complete store layout, including refrigeration and air conditioning.

Visual Presentation Sells

Thus armed with a visualized presentation of the possibilities for such a food store, Davison went directly to a prospective tenant, the owners of the Bellman chain of markets in Toledo. Interesting them, he established contact between them and the building management.

Inevitably, when Bellman leased the space it was Davison Associates which obtained the order for all refrigerating and air conditioning equipment.

The order included 66' of frozen food cases, 44' of produce cases, 24' of dairy cases, 66' of meat cases, 16' of ice cream cabi-

Continued on page 70

FOR THE SERVICE NOTEBOOK

When a service call shows additional repairs will be needed soon, here's a handy way to

KEEP YOUR CUSTOMER HAPPY

ONE of the problems of increasing revenue from service operations experienced by almost every refrigeration company begins when a serviceman, called to a customer's address, discovers that two or more operations on the equipment are advisable, instead of the single process that the owner of the mal-functioning unit expected.

To many customers the difference between a \$20 and a \$40 expenditure looks enormous, and if a portion of the needed repairs are reasonably postponable, then the smoothest way to deal with the situation may be the one employed by A & B Refrigeration Service Co., of Denver, Colo.

Instead of having the serviceman try to sell the customer on immediately authorizing the additional repairs, A & B trains its men to casually let the owner of the equipment know that additional repairs probably will be needed soon. They are specific enough in showing what those repairs are going to be; but they leave the way open for a temporary postponement of them, if the customer so desires.

On leaving the customer's place of business, each serviceman fills out a "memory card" to be used for a telephone call-back 60 or 90 days later. The card lists the name, address, telephone number, and date when the call-back will be advisable. It also contains a brief—but ample—description of the additional repairs that have been postponed.

For example, on the original call the serviceman may have fixed a leak and recharged the equipment with refrigerant. But he also might have noticed that the fan motor is becoming noisy, and probably will soon need replacement of bearings.

In such case, the telephone call-back at a later date is a quick and inexpensive way to solicit the additional job of repairs, reminding the customer that it is in his own interest not to wait until a break-down occurs at a time when serious damage might result from failure to notice it immediately.

Having postponed performance of the second half of the service, the cost of it also has been postponed. This may be an item of considerable consequence to the equipment owner. But it may be equally important to the refrigeration company—from a different angle.

For it means that the kind of customer who would figuratively "go through the roof" at a single bill of \$40—and feel unjustifiably that he was being overcharged—is usually amenable to paying the same \$40 when the same job and the same charge are separated into two parts.

It should be emphasized, however, that such an arrangement is distinctly different from simply doing the job complete in one call and then giving extended credit for the second half of the bill. The credit arrangement would still show the total cost as a single item large enough

Continued on page 115



ICE MAKERS

Show any prospect how he can save this kind of money — and receive a lot of other benefits as well — by buying your equipment, and you'll find him reaching for the order blank

SHOW a prospect in black and white how your equipment can save him \$24,000 per year in operating expenses, and you don't have to push very hard to make the sale. That's what Advanced Refrigeration, Inc., York dealer in Atlanta, Ga., found in promoting the use of automatic ice making machines to the local office of the Railway Express Agency.

The section of Georgia within a 100-mile radius of Atlanta is one of the nation's largest producers of broilers, and much of this fresh dressed poultry is shipped by Railway Express, iced down in barrels and boxes, from the processing plants to the ultimate markets for which it is destined. Considerable quantities of fresh seafood also are shipped through Atlanta in much the same way from Florida and the Gulf Coast areas.

This method of shipment, naturally, makes it mandatory for the shipping agency to have some facilities for re-icing these containers at every transfer point, and sometimes even on the train enroute from one point to another. This made the Atlanta Railway Express office a big user of ice, which it purchased in block form from a local ice company, picked up in its own trucks, and subsequently crushed with its own equipment and manpower.

Recognizing these facts, the management of Advanced Refrigeration realized that the Agency had a definite need for automatic ice making equipment of its own, and probably would prove to be a "sitting duck" for a sales pitch predicated on a cost analysis basis. Consequently, the management of the local Railway Express office was approached, and showed immediate interest in the proposed solution to this phase of their operational problem.

An analysis of the Agency's records for the past 12 months showed that its ice purchases varied with the season, ranging from a low of 222 tons in February to a high of 447 tons in July, for a total of 3769 tons. Of this amount, 328 tons of block ice were used for icing cars, leaving 3441 tons to be crushed for re-icing perishables.

At a cost of \$6 per ton, this meant that \$20,646 was being spent annually to purchase ice for re-icing purposes. Other supplementary costs per ton of ice bought were carefully calculated approximately as follows: hauling, 59 cents; unloading and storing, 24 cents; and removing and crushing, 95 cents. This added up to nearly \$1.79 per ton, bringing the total cost of the ice used for re-icing to \$26,793 annually.

Having arrived at this figure, the Advanced organization then set out to prove the economy story of using automatic ice machines to supply this same amount of ice. With power at 1 cent per kwh and water at 20 cents per gallon, including not only water made into ice but also cooling tower make-up water, the cost of these items per ton of ice delivered from the automatic machines figured out at 78 cents. Thus for the entire 3441 tons the cost would be \$2684, for a gross saving of \$24,109 per year.

When the Railway Express management was faced with these dramatic savings figures, little further selling was necessary, and the contract was promptly signed.

To provide the necessary amount of ice, four machines were installed, each capable of producing approximately 3 tons of ice every 24 hours. Each of these ice makers was powered by a 10-hp York water cooled condensing unit. Because the old ice storage

produce \$24,000 annual savings

room used by Railway Express was in such poor condition, Advanced Refrigeration designed and constructed a new insulated building for this purpose, and mounted the ice making equipment in a penthouse atop the structure. The cooling tower, in turn, was located on the roof of the equipment room.

With this arrangement, the ice flakes drop down through delivery chutes directly into the storage room. Bottom of each chute is equipped with a mechanical trip for safety purposes. Thus, if the storage room should become filled to the top and ice should begin backing up into any of the chutes, the trip would be actuated and that ice machine would be shut off until sufficient ice had been removed from the storage room so that the overflow control could again make contact.

Ice is removed from the storage room through three access doors opening right onto a loading platform. In building the storage structure, a separate room was provided for holding 12 tons of block ice for use in icing reefer type railway cars.

Total cost of the installation, including the new building, amounted to \$30,693, and even allowing for the cost of a maintenance contract and such book-keeping charges as depreciation and interest, Railway Express officials found that the job paid for itself in short order.

In addition to saving such a substantial sum on the cost of ice used, the Agency management soon discovered that the new ice making equipment actually was improving its re-icing practices.

Whereas previously the laborers who handled this job would re-ice shipments only when and as much as absolutely necessary, because of the trouble involved in handling and crushing the block ice, now they quickly fell into a practice of re-icing containers to the limit, and even throwing a scoop or two on top of the lid of any barrels or boxes that were to be left standing on the platform for any period of time.

This procedure has resulted in better preservation of perishables in shipment, Agency officials point out,

Continued on page 119



THIS \$30,000 JOB included building the insulated ice storage room, installing four ice making machines and condensing units in the second-floor equipment room (above), and mounting the cooling tower on the equipment room roof.



BALANCING THE REFRIGERATION SYSTEM

with the aid of proper flow control devices

by John A. Schenk, director of engineering, Alco Valve Co.

PART SIX (Conclusion)

SUCTION LINE REGULATORS

SIMPLE control of the compressor operation by thermostat or pressure switch is inadequate for many refrigeration systems. In many of the present day installations, the desired results cannot be obtained with the "on-off" method of operation.

Suction line regulators offer a very effective method of balancing the output of the refrigeration system to the requirements of the load. Such regulators also enable the system to meet the requirement of a wide range in load by controlling the operating pressure of the evaporator or the suction pressure of the compressor.

Suction line regulators may be divided into two distinct categories, the evaporator pressure regulator, which, as the name implies, regulates the evaporator pressure, and the suction pressure regulator or "hold-back" valve, which regulates the suction pressure at the compressor.

EVAPORATOR PRESSURE REGULATORS

Evaporator pressure regulators can be used on any refrigeration system fed by a high pressure float valve, thermostatic expansion valves, low pressure float valves, or solenoid liquid valve and float switch combinations. Their use is indicated wherever a minimum evaporator pressure or temperature is desired.

Temperature and Humidity Control

An evaporator pressure regulator may be used on a blower type finned evaporator where dehumidification is to be prevented or minimized; for example, in vegetable storage. The regulator will prevent the evap-

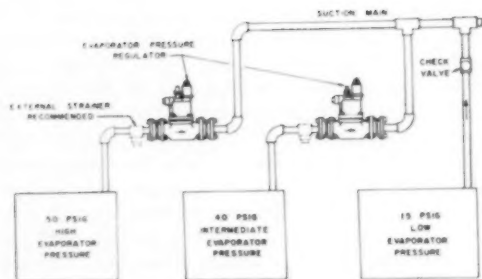


FIG. 30 — Evaporator pressure regulators used in a multiple system.

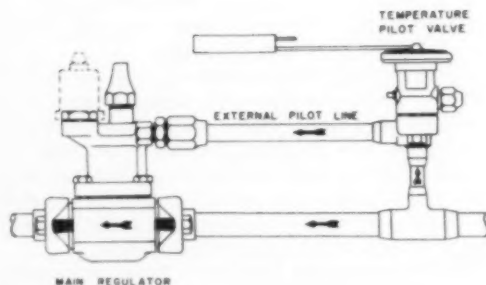


FIG. 31 — Temperature pilot operated regulator.

orator pressure (and corresponding saturation temperature) from falling below a predetermined pressure setting at low loads. This prevents a large temperature difference between evaporator and air temperature which otherwise would cause an objectionable amount of dehumidification.

Evaporator pressure regulators are used on brine or water chiller applications in order to prevent "freeze up" of the chiller when the load is low. When the load is increased, an evaporator pressure in excess of the regulator setting is produced and the regulator will open further until it reaches the wide open position at full load.

On multi-evaporator installations, as shown in Figure 30, evaporator pressure regulators can be installed to provide control of the temperature and humidity in each unit. The regulators prevent lowering of the desired temperature in the warmer units, while the compressor continues operating to satisfy the coldest unit. With such a system, the compressor may be controlled by a low pressure switch or by thermostats installed on the individual units.

Internal vs External Pilot Connection

The evaporator pressure regulator, with internal pilot connection, receives its source of pressure for pilot operation at the regulator inlet connection. Under some conditions of fluctuating load, the stability of evaporator pressure regulator performance can be improved by using a regulator with an external pilot connection. By connecting the external pilot line to the surge drum or suction header on the evaporator, a steadier source of pressure is obtained for pilot operation and the evaporator pressure regulator will give better performance. The larger evaporator pressure regulators are generally provided with the external pilot connection.

Pilot Controls

A remote pilot operated evaporator pressure regulator can be provided by removing the integral pressure pilot, capping this connection, and substituting a remote pressure pilot in the external pilot line. Other types of pilots can be used in the external pilot line for various special applications.

Suction Stop Service

A small solenoid valve installed in the external pilot line enables the regulator to function as a suction stop valve as well as an evaporator pressure regulator. This is particularly useful on a flooded evaporator to prevent "pumping out" of the evaporator when the thermostat is satisfied and the compressor continues operating to cool other evaporators.

Temperature Operated Regulator

In some instances, the use of a modified evaporator pressure regulator may be more desirable to control the temperature of the medium being cooled rather than controlling the evaporator pressure and temperature. In this case, a temperature pilot is used in the

Continued on page 70

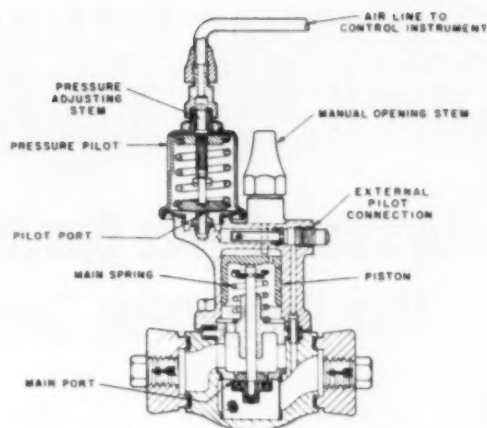


FIG. 32 — Evaporator pressure regulator with pneumatic adjusting feature.

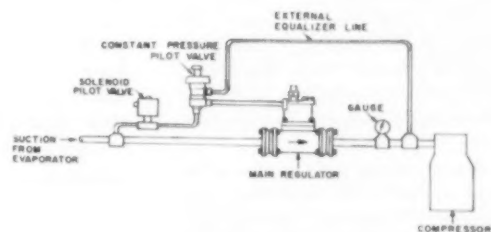


FIG. 33 — Externally pilot operated suction pressure regulator with solenoid pilot valve for suction stop service.

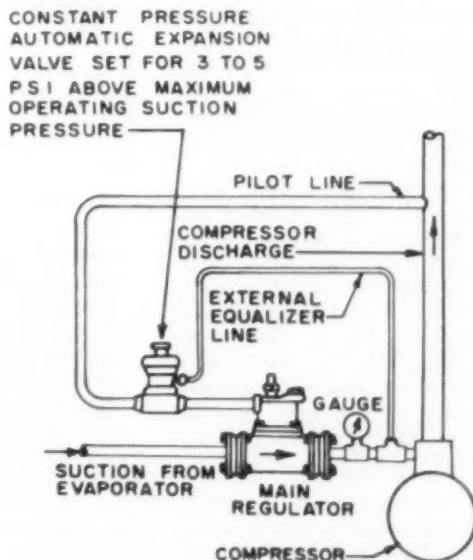


FIG. 34 — Special application of externally pilot operated suction pressure regulator for low temperature service.

COMMERCIAL REFRIGERATOR SALES NEWS

Today's Food Service Operations Need More Refrigeration, Says Wiedemer

THE food service field holds a promising future for any enterprising dealer of commercial refrigeration equipment. That was the gist of a talk delivered to the recent annual meeting of the Food Service Equipment Industry by George F. Wiedemer, president of Cable-Wiedemer, Inc., Rochester, N.Y., and also president of the National Commercial Refrigerator Sales Association.

Merchandising changes in the food service field within the past 10 years, Wiedemer pointed out, have seen the open kitchen, the stainless steel wall lineup, the short order counter, and the fancy modern snack bar gradually take over a tremendous share of the food business. Each of these establishments, he emphasized, use at least six or seven pieces of refrigerated equipment—reach-in refrigerators, walk-in coolers, fountain units, food freezers, juice dispensers, and many others—which means that refrigeration actually has come to be the backbone of these establishments, and of any dealer who serves them.

Wiedemer, whose firm is a member of both industry groups, backed up these declarations with a recital of the following nine specific trends in the food service field which have enhanced the use of—and the merchandising opportunities for—refrigeration equipment.

1. *Portion control in serving food* now is a by-word with every chef or owner. To correctly administer portion control, they must have adequate refrigeration facilities.

2. *Increased use of frozen foods*, and frozen portion controlled left-

overs, makes it almost a necessity for any food service establishment to own a freezer.

3. *Food buying in larger quantities* is on the increase, as restaurant, club, hotel, industrial and institutional users take advantage of savings offered by food merchandisers in the form of price deals and combination purchases. But in order to avail themselves of these savings by buying in larger quan-



ties, the users must have both normal and low temperature refrigerated storage space far beyond their basic requirements.

4. *Serving of chilled wine*, as promoted by the nation's wineries and dealers, has shown a decided increase in popularity of late. Many restaurants now are equipped to bring a variety of wines, all refrigerated, right to the table. Special portable wine refrigerators are now being made and sold by kitchen equipment houses.

5. *Growth of the suburban shopping center*, bringing together in one small area a greater accumulation of customers than refrigeration equipment dealers ever before have enjoyed, provides greatly

amplified opportunity. Bakeries, cocktail lounges, drug stores, variety stores, super markets, and department stores located in these centers all require refrigerated facilities, in addition to the restaurants, snack bars, and other food service establishments.

6. *The increase in number of motels* (with or without food service facilities), roadside restaurants, and highway stands, offers another increased potential for business. The expansion of this field has greatly intensified the competition, and the alert operators realize that the most business will go to those establishments offering the best service. Again, refrigeration is the key. Many motels, for instance, are buying ice cubers and air conditioning, even if they offer no food service facilities. The glorified hamburger stand, on the other hand, no longer is a small-time user of refrigeration. It is not uncommon for the owner of a new stand to spend \$15,000 for equipment.

7. *Leasing of equipment* is another trend which seems to be growing in popularity. Large national catering firms in industrial plants and cafeterias are leasing ice cubers from local dealers on a basis of \$1 to \$1.50 per day. It is my understanding that many refrigeration and kitchen equipment firms in California have gone heavily into this leasing business. At least one national manufacturer of refrigeration equipment is encouraging its dealers to lease such equipment as ice cubers and air conditioners, and is showing them how to do it.

Last year our own firm, Cable-Wiedemer, Inc., entered into a lease agreement with a local dairy, and as a result we now have about \$67,000 worth of equipment out on lease. Our profit picture on this business has been excellent. In order to really get into this leasing business, however, an excellent financial standing or a good banking connection is essential. Refrigerated items such as ice cubers, reach-ins, bain maries, and others that do not deteriorate rapidly are best suited to this type of business.

8. *Laws governing the display of pastries and baked goods* are on the statute books of many states, and the field is wide open for alert

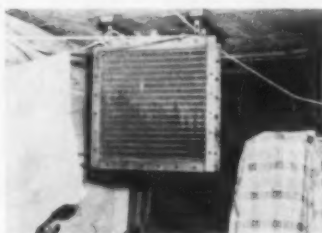
dealers to sell refrigeration equipment for this specific purpose. Many restaurants, clubs, taverns, and bakeries have installed refrigerated wall cases or display units for baked goods for no other reason than to keep within the law.

9. *Air conditioning is really spreading its wings*, but until the industry becomes more stabilized there will be a profit problem involved. But food service establishments are buying air conditioning, so why pass it up? Actually, to sell a store air conditioner a salesman needs less instruction than to properly line up and sell cooking equipment. Any dealer who is adequately prepared to service this equipment can get his share of the business.

NAMED BY USAIRCO

General Heating & Air Conditioning Co., Dallas, Tex., has been named distributor by the U. S. Air Conditioning Corp., for its complete line of products. The Dallas firm employs 22 persons and operates a fleet of nine trucks.

VERSATILE CONDENSER



DOUBLE DUTY is done by this "Unicon" condenser. It was installed 16 years ago primarily to serve a walk-in refrigerator in a grocery store in Montclair, N. J. But the wife of the store owner has also used it continuously as a clothes-drier. It is in the basement beneath the store.

BEVCO USES BOOK AS SALES AID

A "Book of Cooler Knowledge" is being used as a sales aid by Bevco Co., Inc. Bound in hard covers, it is for distribution primarily to bottlers and other beverage manufacturers.

In addition to showing the company's coolers, the book stresses the relatively small cost factor of

such equipment in relation to total beverage sales revenue. A smaller edition of the book is intended for use by bottlers' salesmen in the selling of their own products.

ENGINEERS ATTEND SCHAEFER SEMINAR

A recent three-day seminar in the servicing of ice cream cabinets, conducted by Schaefer, Inc., was attended by 23 engineers representing key distributors.

The meeting was held in conjunction with the appearance of a new style, service and parts book which includes numerous diagrams for solving service problems.

Conducting the program were: H. L. Poffenberger, Schaefer's chief service manager; C. A. Hargrave, chief engineer; Paul Ome-lianchuk, design engineer; and C. R. Brand, chief field engineer.

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- streamlined design • beautiful Hirshwood shelves
- pushbutton shelf adjustability • comes complete
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are still available. Write for details!

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8051 Central Park Avenue, Skokie, Illinois
Gentlemen: Please send me complete information about
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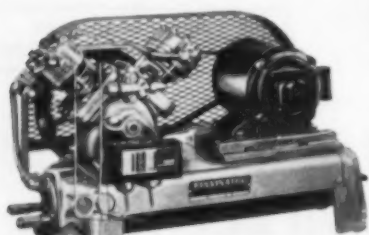
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CITY _____ ZONE _____ STATE _____

Circle No. 47 on Reader Service Card

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**Get Polarsphere
Sealed Condensing Units
with a Proven, Unequalled
Record of Dependability!**

Internally mounted, hermetically sealed units. Light in weight with exceptional structural strength. Give long, efficient, quiet operation. The finest refrigeration mechanisms you can buy. A complete line from 1/5 H.P. through 1/2 H.P. for a wide range of applications.



Model OW-75—(1/4 H.P. Water-Cooled Open-Type Condensing Unit)

OPEN-TYPE CONDENSING UNITS EXTRA CAPACITY—EASIER TO SERVICE

★ Air-Cooled ★ Water-Cooled ★ Combination Air & Water Cooled ★ Space-Saving Truck Units

No other open-type condensing units can compare with Kelvinator for performance—long trouble-free service, and price. Extra-large air-cooled condensers; extra-capacity, water-cooled condensers. Extra-heavy-duty construction and precision built throughout. A complete line from 1/4 H.P. air-cooled through 5 H.P. water-cooled.



Model K352CR—1/4 H.P. Capacitor Start

**PACKAGED FOR
HOUSEHOLD &
COMMERCIAL
CABINET
REPLACEMENTS**



Model DK352C
1/4 H.P. Capacitor Start

**High
Capacities
Competitively
Priced!**

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Commercial Dept. Kelvinator Division
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14250 Plymouth Road, Detroit 32, Michigan

I am interested in more information about

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USEFUL

BULLETINS • BOOKLETS • CATALOGS

HOW TO USE and specify rigid plastic pipe and fittings is subject of new 12-page catalog issued by Alpha Plastics, Inc. Especially for engineers, this publication provides reference facts on 1/2 to 4" sizes of normal impact and high impact unplasticized polyvinyl chloride pipe and fittings. It includes characteristics data, detailed drawings and specifications of solvent-type and injection-molded threaded fittings. Especially useful is a corrosion chart classifying more than 275 corrosives rated according to desirability of use with plastic piping.

Circle No. 151 on Reader Service Card

PROPYLENE GLYCOL, a raw material used as an antifreeze in refrigeration systems, is described in a new 16-page data folder of Carbide & Carbon Chemicals Co., Div. of Union Carbide and Carbon Corp. Data includes physical properties, solubilities, applications, and other information in eight charts. Advantages of the use of this product where coolant may accidentally come in contact with food are among points discussed.

Circle No. 152 on Reader Service Card

MAINTENANCE AND TESTING of calcium chloride brines for acidity or alkalinity, for strength and for contamination, are described in a technical and engineering bulletin (No. 4) issued by Solvay Process Div., Allied Chemical & Dye Corp. A wall chart to show at a glance how much chloride is needed to bring brine up to proper strength is also available.

Circle No. 153 on Reader Service Card

FLEXIBLE METAL HOSE and types of couplings are described by Flexonics Corp., in a 12-page folder. Included are pictures showing construction differences in various types of hose, and other information listing their sizes, capacities, and typical applications. For convenience, a form of 16 points to be considered in inquiries is also provided.

Circle No. 154 on Reader Service Card

HELPFUL INFORMATION concerning the construction, operation and maintenance of a soft ice cream stand is contained in a booklet issued by Fort Morris Machine & Tool Works, Inc. It was written by a man with 12 years personal experience in this field. Title is: "What Insures a Profitable Ice Cream Stand?"

Circle No. 155 on Reader Service Card

MORE THAN 140 MODELS of portable tools, chiefly electric and pneumatic, and including such items as hand and bench saws, sanders, valve seat grinders, and sanders, are listed and described in a new 60-page catalog of Skil Corp.

Circle No. 156 on Reader Service Card

STANDARD SIZE UNITS of Thermopane insulating glass are listed in a new pocket-size folder of Libbey-Owens-Ford Glass Co. The information is primarily for use of design engineers, including refrigeration and air conditioning.

Circle No. 157 on Reader Service Card

(Turn to page 58 for more Useful Literature)

336,000

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Our extruders have turned out enough plastic and rubber extrusions to reach to the moon and halfway back. In compiling this vast experience General Tire's Industrial Products Division has supplied thousands of original equipment manufacturers with just about every known type of extrusion. No job is too large, too small or too complicated for our design and production staff. Perhaps you can benefit from the fantastic extrusion mileage we've accumulated down through the years.

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NEW UNIFLOW WATER COOLERS . . .

NOW IN BEAUTIFUL PEARLTONE
GREY WITH YOUR CHOICE OF 6 TOPS
COLOR KEYED TO
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EYE APPEALING
COLORS.. AT NO
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PEER BLUE



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SPRUCE GREEN



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Featuring FOOT PEDAL
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UNIFLOW MANUFACTURING COMPANY
EAST LAKE ROAD, ERIE, PENNSYLVANIA

Circle No. 50 on Reader Service Card

USEFUL LITERATURE . . .

Continued from page 57

FULL INFORMATION on its full line of commercial refrigeration condensing units and compressors, both open type and hermetic, air-cooled and water-cooled, is contained in a new 24-page catalog of Kelvinator Div., American Motors Corp. A cross-sectional drawing of the mechanism of the "Polaris" sealed unit, specifications and exceptionally complete operational data are included.

Circle No. 158 on Reader Service Card

COMPRESSION PLUGS are described in a new 12-page catalog of Hermetic Seal Products Co., which manufacture the "Vac-Tite" line. In presenting technical information pertaining to various models, this catalog uses a coordinated standardization of parts and terminology. A major characteristic of this line is its glass-to-metal chemically bonded compression construction.

Circle No. 159 on Reader Service Card

A NEW MANUAL for refrigeration and air conditioning servicemen, giving step-by-step operations for removal of scale from condenser tubes and for treatment of cooling water to prevent scale build-up, has been issued by Anderson Chemical Co. Information includes usage of this company's algacide, cleaning, and water treating compounds.

Circle No. 160 on Reader Service Card

PERFORMANCE DATA pertaining to vibration, shock and noise control products are among the contents of a 4-page catalog insert (K4A) of Korfund Co., Inc. Engineering specifications, and a discussion of the relative merits of springs and organic materials as isolating media, and a selector chart are also included.

Circle No. 161 on Reader Service Card

CAPACITOR REPLACEMENT PROBLEMS will be simplified for users of a 20-page publication of Cornell-Dubilier Electric Corp. Tables list measurements, weight, safe working pressures, twist prong capacitor types for quick interchangeability, along with stock numbers and approximate prices.

Circle No. 162 on Reader Service Card

DISPLAY OF FLOWERS under refrigerated conditions is the main topic of an illustrated brochure of Character Refrigerators Co. Various models designed especially for florists, and basic assembly details are shown. Illustrations of a new "picture frame front" for showrooms are a major highlight of the publication.

Circle No. 163 on Reader Service Card

TECHNICAL INFORMATION pertaining to copper tubing is provided in a 32-page file-size guide issued by Reading Tube Corp. Tables list measurements, weight, safe working pressures, water flow computations, and thermal conductivity. Other sections illustrate applications and methods of handling.

Circle No. 164 on Reader Service Card

TIME CONTROLS in a variety of models for refrigeration applications are described in a 4-page folder of Paragon Electric Co., showing the diversified combinations of operations which can be performed by each type of unit.

Circle No. 165 on Reader Service Card

(See page 93 for Air Conditioning Literature)



Step right this way, refrigeration men, see the spectacular parade of the greatest performers on earth now at your wholesaler's.

You can't change the stripes of a zebra, but you can change cartridges easily in a Mueller Brass Co. Angle Strainer, without disturbing line connections.



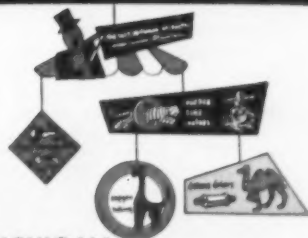
Friend Hippo has a rugged hide, almost as rugged as the tough Nylon seating discs in Mueller Brass Co. Diaphragm Valves . . . they're built to last and last.

The camel soaks up enough water to last him a week but that's nothing compared to the moisture "load" that can be held indefinitely by a Mueller Brass Co. Drier.



SEE THIS DISPLAY AT YOUR WHOLESALER'S

This ad only shows part of the parade . . . see the giant, colorful "flying mobile" now on display at your wholesaler's, attracting attention to the "best performers on earth".



MUELLER BRASS CO. PORT HURON 10, MICHIGAN

NEW PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

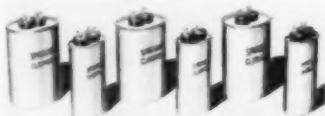
(For Air Conditioning Products turn to page 96)

Ice Producer

Product: Shell-ice makers in capacities of $\frac{1}{2}$ to 30 tons in 24 hours.
Manufacturer: Frick Co., Waynesboro, Pa.

Features: A series of stainless-steel tubes, suspended vertically, are cooled inside with direct-expansion ammonia or Freon. Water is kept flowing down the outside of the tubes, its motion providing sufficient agitation, with reasonably good water, to make clear ice. When frozen

sizes available for 236, 330, 440, and 660 volts, 60 cycles. Either shallow or deep-over cases can be furnished, and fork-type and single-blade ter-



minals are also available. Hermetic sealing in drawn seamless cases prevents leakage of Clorinol impregnant, a non-flammable synthetic of high dielectric strength.

Circle No. 102 on Reader Service Card

Beverage Vendor

Product: Bottled beverage vendor (K-174), coin-operated.

Manufacturer: Kelvinator Div., American Motors Corp., Detroit, Mich.

Features: Model accommodates three combinations of flavors or sizes; can handle 6, 7, 8, 10, and 12-oz. bottles. It has a theft-proof lock-out feature that delivers only one bottle for each purchase. Coin



mechanism can be made to function either as a changer or for odd-cents operation. Magazines and pre-cooler are loaded from front. "Polarsphere" refrigeration insures silent operation and includes automatic defrost mech-

anism. Temperature range adjusts from 34 to 40 F. Cabinet is 6' high, 37" wide, and 22" deep.

Circle No. 103 on Reader Service Card

Ice Machine Cleaner

Product: "CSCO" powder for removing water residues from ice-makers.

Manufacturer: Chemical Solvent Co., Birmingham, Ala.

Features: New formula avoids dangers to skin, eyes, and lungs of operators, and has no harmful effect on metals. It leaves no toxic residues or unpleasant odors. Assures more efficient machine operation, and a cleaner product.

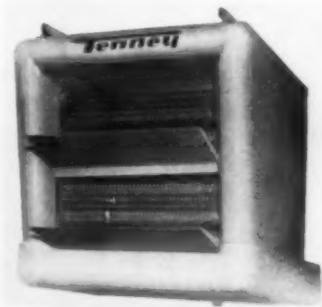
Circle No. 104 on Reader Service Card

Easy-Mount Cooler

Product: "Angle-Air" general purpose cooling unit.

Manufacturer: Tenney Engineering, Inc., Union, N.J.

Features: New unit is especially easy to mount and service. For mounting, a template is first fasten-



ed into position. Unit itself is then slid into position on rail hangers. Connecting of refrigerant, power, and drain lines completes operation. Cooler's suction line provides simple expansion valve bulb location, and unit has aluminum fins mechanically bonded on electro-tin plated copper tubing, adjustable louvers, and vibration mounted motor. Capacities range from 4000 to 40,000 Btu.

Circle No. 105 on Reader Service Card

Automatic Defrost Case

Product: Self-contained low temperature case with fully automatic defrosting.

Manufacturer: Bally Case and Cooler Co., Bally, Pa.

Features: Designed for ice cream and frozen food display. Defrost system uses tubular type electric heaters, started automatically (2 a.m. recommended) by time clock. Cooling is done by fin-type coil and display area has no dividers. Case is 60" long, 35" deep and



to a thickness of $\frac{1}{8}$ to $\frac{1}{2}$ ", the water and cold refrigerant are shut off, and warm refrigerant is admitted to thaw the tubes, bottom first. When the ice is released it slides down the tubes by gravity, passing over a breaker on its way to bin or storage room. Tubes are usually 4" o.d., and produce a tone of ice daily from lengths of 9 to 12', depending on temperatures used. Operation is completely automatic. Units are readily portable.

Circle No. 101 on Reader Service Card

Restyled Capacitors

Product: Capacitors with new universal type terminals.

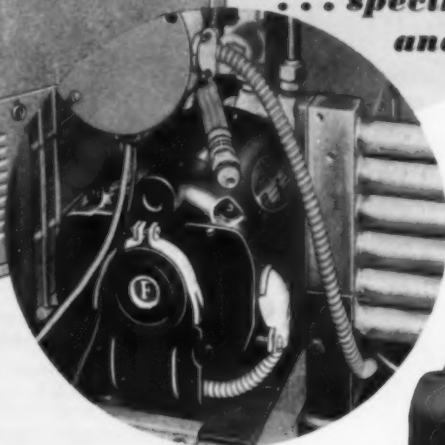
Manufacturer: Sprague Electric Co., North Adams, Mass.

Features: New terminals are standard on drawn oval-case "Clorinol" a-c capacitors. They permit unit to be installed with or without soldering. Notched and perforated blades also fit quick-connect clips used with harness wiring. Standard



Sodamaster's Franklin Motor

... specified for dependability
and space-saving design



... COMPACT
MOTOR-PUMP UNIT
IS INTEGRATED TO CUT
COST AND SAVE SPACE

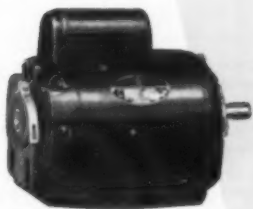
PUMP MOUNTS
DIRECTLY TO
THIS MOTOR



dependable!

Franklin Motors

are application-engineered for many well-designed, top-quality products where a better motor is wanted at no increase in cost.



MANUFACTURERS

of commercial, home and farm appliances know that Franklin Motors add dependability which results in a reputation for better performance. DEALERS appreciate Franklin Motors which minimize the need for costly service calls. CUSTOMERS are excellent salesmen for appliances that incorporate Franklin Motor dependability.

Look for Franklin Motors as a reliable guide to quality in . . .

- LEADING WATER SYSTEMS
- FINEST SUBMERSIBLE PUMPS
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- NEWEST FARM APPLIANCES
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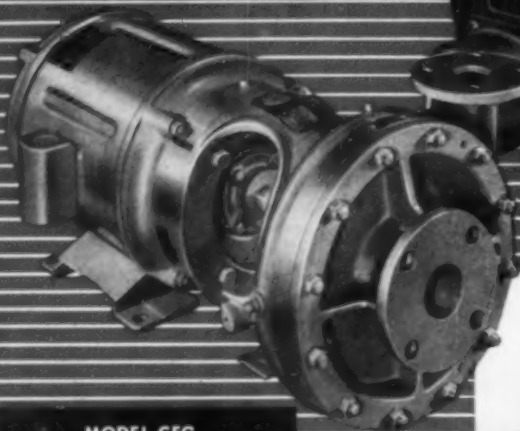
HOME OF DEPENDABLE ELECTRIC MOTORS

Circle No. 52 on Reader Service Card

NO WAITING FOR PUMPS AND CONDENSERS...

Popular sizes carried in stock!

SERIES 1531 UNI-BUILT PUMP



SERIES 1522 UNI-BUILT PUMP



**MODEL CFG
SHELL AND COIL CONDENSER**



**MODEL CRF
STRAIGHT TUBE CONDENSER**



Specially designed pumps for air conditioning and refrigeration applications

For your convenience, a stock of most commonly used sizes of B & G Series 1522 and 1531 Pumps is maintained at the factory for immediate shipment.

The leak-proof "Remite" Mechanical Seal alone makes these pumps a *buy!* This new-type Seal is harder than glass—wear-proof, corrosion-resistant. It's self-lubricating and eliminates leakage through the packing gland—assures trouble-free operation.

Smooth running... quiet!

Oversize bearings hold the shaft in alignment for smooth, quiet performance...balancing of the impeller prevents shaft vibration and seal failure. B & G Series 1522 and 1531 Pumps kept in stock at the factory are bronze-fitted only, but are available as all-iron, all-bronze or stainless steel units.

With all these advantages, prices are competitive.

B & G Condensers for replacement or original equipment in smaller installations

B & G quality in two moderately priced refrigeration condensers...built in popular sizes and stocked for immediate shipment.

Model CFG is a shell and coil condenser with extended surface for rapid transfer of heat. Correct designing and sturdy construction assure efficient, dependable service. Built to ASME Code requirements and labeled "UM".

Model CRF is an extended surface, straight tube unit with removable head for easy cleaning. It is constructed and stamped in accordance with ASME Unfired Pressure Vessel Code.

Send for complete
information on
B & G Stock Pumps
and Condensers



BELL & GOSSETT
C O M P A N Y

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Canadian Licensee: S. A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto, Canada

Circle No. 53 on Reader Service Card

JULY, 1955 • COMMERCIAL REFRIGERATION

has a storage area of 13 cu. ft. Will pass through 36" door opening. Canopy 17" high is optional. Case is 41" high without canopy. Case is powered by $\frac{3}{4}$ hp hermetically sealed unit. Coils are copper with close



spaced aluminum fins; small fan moves air over coils for continuous refrigeration. Stainless steel sliding lid covers open display area at night. Porcelain exterior and interior. Sheet cork insulation.

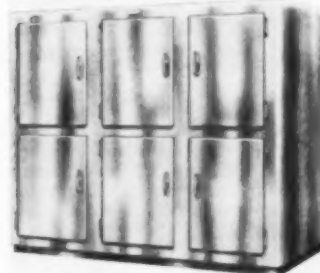
Circle No. 106 on Reader Service Card

Reach-In Units

Products: "Flex-O-Unit" stainless steel reach-ins, dough-retarders, and freezers.

Manufacturer: Stainless Food Equipment Co., Inc., Newark, N.J.

Features: Units are part of a line of over 500 styles of refrigerating equipment especially for restaura-



nts, bars, bake-shops, and similar. New models are available in a wide variety of sizes and capacities, remote or self-contained. In some, thermo-pane glass doors are alternative to all stainless steel.

Circle No. 107 on Reader Service Card

Two-Way Radio

Product: Radio conversation units ("Carfone-450") for trucks and cars, with companion units for business headquarters.

Manufacturer: Radio Corp. of America, New York, N.Y.

Features: Equipment permits easy voice-contact between main of-

fice and service men or salesmen. Units carry FCC type approval for use in Class A Citizens Band Radio Service. Both mobile unit and desk equipment are engineered for frequency stability of 0.001% without ovens, have high efficiency loudspeakers and a tamper-proof i-f filter pretuned at factory. They can be operated on any frequency in the 450-470 megacycle band by changing crystals and retuning to the appropriate frequency. Mobile unit uses 6 or 12-volt current. Both units have 15-watt output. Car model is 6" x 15" x 17 $\frac{3}{4}$ ". Desk model is 10 $\frac{1}{4}$ " x 19 $\frac{1}{4}$ " x 18 $\frac{1}{4}$ ".

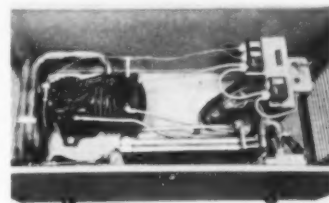
Circle No. 108 on Reader Service Card

Water Chillers

Product: Packaged water chillers for residential air conditioning.

Manufacturer: Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.

Features: Air-cooled units are in 2-hp size with output of 19,000



Btu. and 3-hp size of 27,000 Btu. Water-cooled units are in 2-hp size with output of 22,700 Btu, 3-hp with 32,800 Btu, and 5-hp with 51,000 Btu. Each type is available in single or three-phase. Compressors are semi-hermetic with sealed motor. Electrical wiring is complete at the factory. Included are overload protection, magnetic starter when required, high and low pressure refrigeration cutout, and thermostatic control to maintain correct temperature and prevent freeze-ups.

Circle No. 109 on Reader Service Card

Multi-Purpose Unit

Product: "5-in-1" ice cube maker and beverage cooler (Model 1-6 SC-D) for bars and similar use.

Manufacturer: 4-Brothers Refrigeration Mfg. Co., Inc., Philadelphia, Pa.

Features: Unit makes 200 lbs. of solid ice cubes and dry cools 1500 12-oz. beverage bottles daily at 34 F. It also has a frost glass chilling section that could alternately be used for frozen foods at 25 F. There is a storage bin for ice cubes, and an ice water station. This model is 6'

long, 39" high, 27" wide. Other sizes range from 4 to 10'. All have stainless steel interior walls. Front, top and two sides of exterior are of same material. Insulation is 3" fiberglass. Refrigerating units range from $\frac{1}{4}$ to $\frac{3}{4}$ hp.

Circle No. 110 on Reader Service Card

Line Load Tester

Product: Portable voltmeter to show electrical circuit capacity under load.

Manufacturer: Hickok Electrical Instrument Co., Cleveland, Ohio.

Features: Instrument plugs into 105-125-volt line at any outlet. Front panel switch then permits check at



1000 and 2000-watt loads to show amount of change in line voltage due to load, thus determining circuit capacity and adequacy of existing wiring to handle freezers, air conditioning units or other appliances. Case is of steel with carrying handle.

Circle No. 111 on Reader Service Card

Water Coolers In Colors

Product: "Uniflow" water coolers with tops in six decorator colors.

Manufacturer: Kold-Draft Div., Uniflow Mfg. Co., Erie, Pa.

Features: Top colors are available in spruce green, peer blue, bur-



gundy, grey, black, and white. Product has bubbler or glass filler attachment utilizing foot pedal control, and may be had with or without refrigerated compartments. Cab-

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

inets are finished in pearltone grey or stainless steel.
Circle No. 112 on Reader Service Card

Flaked Ice Maker

Product: "Knowles" ice maker in 1/2 to 25-ton sizes.

Manufacturer: Belt-Ice Corp., Seattle, Wash.

Features: Machines are solid drum, direct expansion type, to operate on ammonia or Freon 12. Ice comes out at low temperature with no entrained water and can be handled on any conventional conveyor system. Cutter bar does not touch

drum and requires no sharpening; it removes ice by impact. Ice is delivered in form of flakes, suitable for packing fish, poultry, dairy products, produce, beverages and other items.

Circle No. 113 on Reader Service Card

Tube Benders

Product: "Blue Dot" lever-type benders for soft or hard tubing.

Manufacturer: Imperial Brass Mfg. Co., Chicago, Ill.

Features: New benders can be used for hard drawn copper, stain-

less steel and JIC steel tubing, and without using a clamp. Device is of open-side type which makes it possi-



ble to slip it over tubing at the exact place where bend is desired. Short radius bends can be made at any angle up to 180°. Each tool handles one size of tubing. Sizes range from 3/16" to 3/4" o.d.

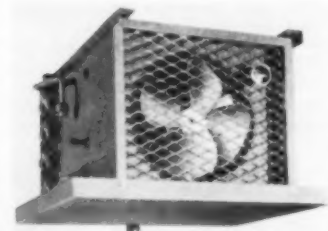
Circle No. 114 on Reader Service Card

Unit Cooler

Product: Series BUC, "Krack" unit cooler for ceiling mounting, general application.

Manufacturer: Refrigeration Appliances, Inc., Chicago, Ill.

Features: Single and double fan models are available, with a range from 265 to 1400 Btu/h at 1 F, T.D. They include built-in heat-exchanger, electro-tinplated copper tubes,



balanced corrosion-proof fan blades, built-in refrigerant distributor, heavy gauge galvanized steel housing, baked enamel finish, and rubber-mounted motors. Air volume is 6.5 to 3150 cfm.

Circle No. 115 on Reader Service Card

Ice Cube Machine

Product: Ice-making machine, producing cubes to pre-determined size.

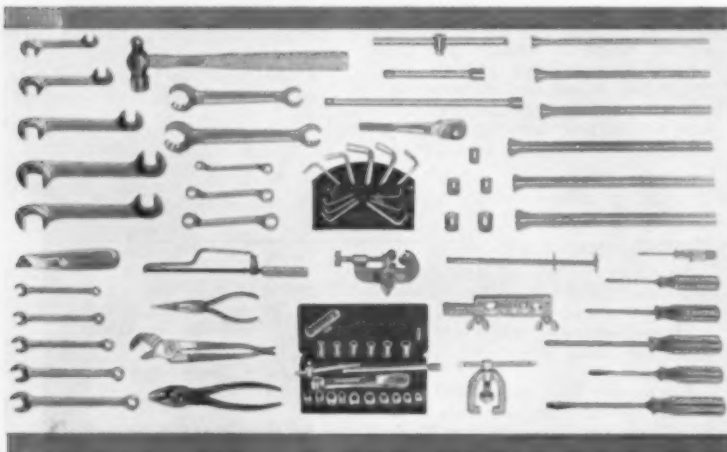
Manufacturer: Frigidaire Div., General Motors Corp., Dayton, Ohio.

Features: Unit produces 450 lbs. of cubes or cubelets per day by automatic process in which water is constantly recirculated over a freezing plate which forms a slab of pre-determined thickness. When slab has formed, it is automatically transferred to a grid where cubes are cut to



From a flare nut wrench . . . to a 76 piece set, leading refrigeration mechanics look to BONNEY for the right tool for every job. BONNEY makes a complete line of special refrigeration tools, particularly designed to meet the needs of the refrigeration mechanic and service man.

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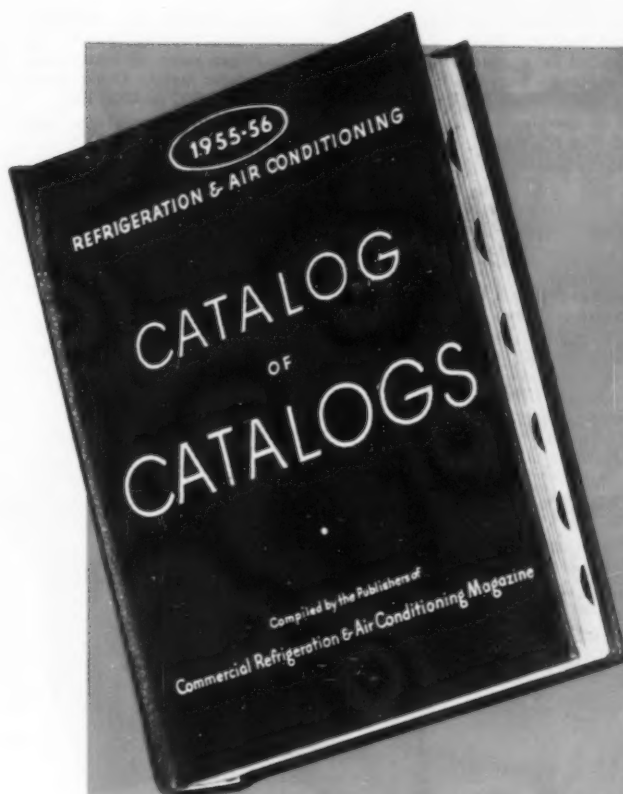


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— the first volume of its kind — bound in a durable hard cover — is now ready for distribution. Never before has there been a single volume combining all the product specifications and data of commercial refrigeration and air conditioning equipment, both packaged and remotely installed, as well as all the components of such units and systems. Manufacturers will present their own catalog or specification sheets in this book.

AIR CONDITIONING EQUIPMENT SECTION

Bound-in manufacturers' catalogs or specifications sheets, with working technical data and source listings. The features of this section will be the comparative specification listings of 1955 lines of room, store, and residential air conditioners. This will be presented in the same manner as that of previous years, which has been so successful, and used by so many thousands of men in this field.

CASE AND FIXTURE SECTION

Refrigerated case manufacturers' catalogs and specifications sheets answering problems in the application of packaged and remotely installed cases and coolers for merchandising or storage of all types of food and beverage products. Blueprints of practical store plans for typical food market layouts. Listings of manufacturers of this equipment.

COMPONENT SECTION

General engineering, contracting, and architectural working data, including comprehensive listings of components and accessories. Information to aid in the application of equipment in refrigerated or air conditioned areas. Bound-in manufacturers' catalogs and specifications sheets.

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size and dropped into a storage bin. Machine stops when bin, with 375-lb. capacity, is full. Cycle begins again when supply is diminished. Cutting grids are interchangeable,



with cube size $1\frac{1}{2} \times 1\frac{1}{4}$ ", and cubelet size $\frac{5}{8} \times \frac{5}{8}$ ". Thickness may be varied from $\frac{1}{4}$ to $\frac{3}{4}$ ". Company also manufactures a 200-lb. unit. Circle No. 116 on Reader Service Card

Pipe Insulation

Product: Insulation kit with materials to protect pipes from freezing or dripping.

Manufacturer: Smith-Gates Corp., Plainville, Conn.

Features: Kit includes 25' of 3" Fiberglas and two rolls of waterproof tape, each 20' x $1\frac{1}{2}$ ". Fiberglas is wound spirally in one direc-



tion around pipe, while tape is similarly wound in opposite direction. One package contains materials sufficient for 15' of $\frac{3}{4}$ " pipe or 20' of $\frac{1}{2}$ " pipe.

Circle No. 117 on Reader Service Card

Tubed Joint Compound

Product: "Plastic Lead Seal" pipe thread compound, contained in dispensing polyvinyl plastic tube.

Manufacturer: Crane Packing Co., Chicago, Ill.

Features: Sealing compound is non-hardening in threads of water or refrigerant pipes, or similar use,

age, but withstands pressures up to 6000 psi, and temperatures to 600 F. It is supplied in a squeeze-type tube that withstands heavy impacts or pressures. Tube, used for on-job applications of compound, has friction-type cap for reliable tightness. Circle No. 118 on Reader Service Card

Refrigerated Candy Case

Product: Three-deck refrigerated candy case.

Merchandised by: Charles Q. Sherman Associates, Inc., Mt. Vernon, N. Y.

Features: Streamlined case (Model C-366) is finished in gold and white hammertone styling with full fluorescent lighting, takes up only 66" of floor space. Depth is 30". Has gravity coil type refrig-



eration, two thickness fog-free glass front, mirrored backing on eye-level dry shelf, rust-proof interior lining and floor racks, hermetically sealed condensing unit. Stainless steel window trim and white louvered panel is optional. Case is manufactured by Brewer-Titchener Corp.

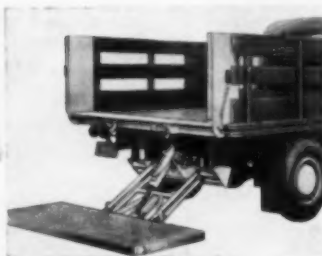
Circle No. 119 on Reader Service Card

Truck Lift Gate

Product: Model 144 truck lift gate for 1000-lb. loads.

Manufacturer: Anthony Co., Streator, Ill.

Features: Unit is designed for $\frac{3}{4}$ and 1-ton stake and van trucks



but may be applied to larger sizes. Its own light weight is an added

value factor. Device has hydraulic power, is manual-spring closed, and comes in either ramp or square-end general purpose styles. Other models handle from 800 to 4000 lbs.

Circle No. 120 on Reader Service Card

Ice Makers

Product: Lipman "Ice Boy" line of ice machines with selective size control.

Manufacturer: Yates-American Machine Co., Beloit, Wis.

Features: Five models manufacture ice in sizes to match drinks. Capacities range from 1000 to 4000



pieces per day and storage area is proportionate to size. Machines are finished in grey color or stainless steel. Complementing this line is Lipman ice crusher which can deliver a pound of crushed ice per second, in fine, medium, or coarse sizes.

Circle No. 121 on Reader Service Card

Rust Inhibitor

Product: Rust proof primer for treating metals already rusted.

Manufacturer: Champion Bronze Powder & Paint Co., Chicago, Ill.

Features: Desirable chemical reaction occurs when primer is applied to rusting surface. Reaction creates special pigment which stops further rust formation. Primer is recommended both for large and small jobs, with applications in refrigeration and air conditioning.

Circle No. 122 on Reader Service Card

Home Super Bar

Product: "Scotsman" super bar for residential use.

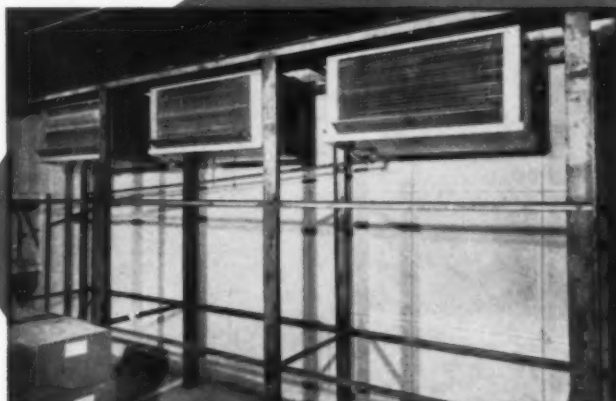
Manufacturer: American Gas Machine Co., Div. of Queen Stove Works, Inc., Albert Lea, Minn.

Features: Unit simultaneously manufactures ice cubes, provides dry cold storage for beverages, de-



BUSH HG UNITS

CHOSEN TO CHILL NEW FROZEN FOOD WAREHOUSE



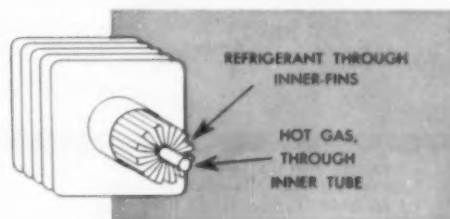
Bush 'HG' Hot Gas Defrost Unit Coolers refrigerate both the main storage area and "pickup" room of this modern Associated Grocers' frozen food warehouse in Pittsburgh.



Each 'HG' unit cooler is actually *two units in one*. Inner-Fin coil design—exclusive with Bush — combines evaporator and re-evaporator in a single unit. No reboilers, storage tanks or other complicated "extras" are required.

Units defrost *from the inside*. Inner-Fin design assures rapid distribution of heat to the area where frost forms. Thus, defrosting is quick and complete . . . room temperature rise is held to a minimum.

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humidifies room air, and stores liquor in lockable compartment. Cold area holds four cases of beer or pop. Liquor drawer holds 1½ cases of fifth-size bottles. Units are avail-



able with or without dehumidifier. Casters are optional. Bar is finished in coppertone baked-on hammerloid enamel with stainless steel or chrome trim. It has 1/5-hp, 115-volt, refrigerating equipment.

Circle No. 123 on Reader Service Card

Carbonator Unit

Product: "Triple-Jet" carbonator for saturating water with CO₂ gas.

Manufacturer: Hudson Industries, Inc., Detroit, Mich.

Features: Motor driven pump unit may be operated at peak even when water pressure is at minimum. Carbonization cylinder contains new



type of upward triple-spray nozzle combined with the venturi principle. Liberal trade-in allowance is offered on used Hudson C. P. motorless carbonators.

Circle No. 124 on Reader Service Card

Sealed Unit Opener

Product: Semi-automatic machine to open any size (up to 20" dia.) or shape of hermetic compressors, regardless of the position of

the weld, for repair or replacement of contents.

Manufacturer: Frankell Mfg. Co., New York, N.Y.

Features: Operator places compressor on turntable, sets clamp, then positions movable grinder to contact with weld. Switch starts grinding which continues until auto-



matic stop. Metal cabinet with shatterproof windows covers operation. Machine handles round, oval, and odd-shape compressors, takes 8 amperes at full load, and comes ready to plug in.

Circle No. 125 on Reader Service Card

Cooling Tank

Product: Model XW-150C, a water cooling tank for use with separate condensing unit in custom water cooling installations.

Manufacturer: Temprite Products Corp., Birmingham, Mich.

Features: Unit may be connected to glass filler, bubbler, or other



outlets, or may be used for auxiliary line cooling. It is suitable also as a replacement in soda fountains, self-contained coolers and the like. It

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may be had with or without an insulated cabinet. When cabinet enclosed, the size is 7½" square, by 15½" high. Capacity when used with a precooler is 27 gph.

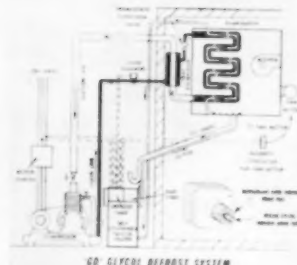
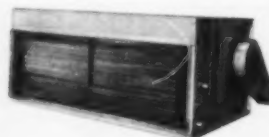
Circle No. 126 on Reader Service Card

Glycol Defrost Coolers

Product: Ceiling and floor units for low temperature product refrigeration, with new design feature permitting units to defrost from inside.

Manufacturer: Bush Mfg. Co., West Hartford, Conn.

Features: Units have "Inner-Fin" coil construction which applies heat through interior of refrigerant



circuit. Separate defrost circuit includes glycol pump, cast aluminum heater, timer and magnetic contact or furnished as assembled kit. Arrangement reduces danger of defrost failures, and of dilution of defrosting medium.

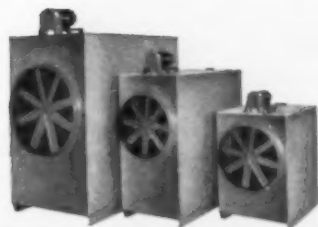
Circle No. 127 on Reader Service Card

HENRY RELIEF VALVES RECEIVE ASME APPROVAL

Henry Valve Co. has announced new increased capacity ratings for its more popular types of relief valves in sizes ½" through 1" for both Freon and similar refrigerants, and ammonia. These valves are constructed in accordance with the requirements of the ASME Unfired Pressure Vessel Code and now carry the official marking symbol indicating National Board approval and capacity certification.

E. Jones, chief engineer, states that this marking symbol also enables these valves to comply fully with the relief valve requirements of the ASA B9.1-1953 Refrigeration Code.

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Not one, but three individual finishes coat every Halstead & Mitchell sheet steel cabinet. Vinsynite phosphates the metal, providing *maximum* protection against corrosion. Vinyl Zinc adheres tightly to the Vinsynite . . . is tough, flexible, inert . . . and provides high resistance to moisture vapor. Chlorin-

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Halstead & Mitchell cooling tower fans and shafts are Stainless Steel. Rust-proof, of course.

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For ease of disassembly after years of operation, H & M uses Everdur Bolts in all cooling towers.

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on the wetted deck surface against rotting or fungus attack

Only Halstead & Mitchell pressure-croosotes all wood used in its cooling towers, to provide the most satisfactory protection known against rotting, fungus attack, and corrosives in cooling water. That's why you get the "20-Year Guarantee" only from H & M.



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BALANCING . . .

Continued from page 53

external pilot line in place of the pressure pilot on an evaporator pressure regulator as shown in Figure 31.

With the bulb of the pilot valve placed to respond to the temperature of the load, the pilot valve moves in a closing direction gradually as the temperature of the bulb decreases. This, in turn, causes the main valve to move in a closing direction gradually. At full load, the regulator opens wide and permits the evaporator pressure to be approximately the same value as the suction pressure, except for the pressure drop loss through the regulator.

In a water cooler, for example, a large temperature split may be used without danger of a "freeze up" when the load is high. This arrangement provides the maximum temperature difference to accommodate the high load and maximum rate of pull down. On a single evaporator installation, when the load is satisfied, it is necessary to provide a limit control in the form of a thermostat or pressure switch to control the operation of the compressor and solenoid liquid valve, if one is used.

In the event a low limit control of the evaporator pressure is desired, when using a temperature pilot operated regulator, the pressure pilot shown dotted in Figure 31 is also required.

Pneumatic Control of Regulator Setting

In some cases it may be desirable to change the evaporator temperature in response to a control instrument while retaining all of the evaporator as effective cooling surface. This is possible through the use of an evaporator pressure regulator with a pneumatic connection as shown in Figure 32.

When the control instrument requires an increase in evaporator temperature, an increase in air pressure is supplied on the top side of the pressure pilot diaphragm, which raises the evaporator pressure and corresponding saturation temperature. A decrease in air pressure supplied to the top

side of the pressure pilot diaphragm by the control instrument will result in a decrease in evaporator pressure and corresponding saturation temperature.

SUCTION PRESSURE REGULATORS

On some installations, the load may exceed the value that can be safely carried by the compressor motor. In order to protect the compressor motor from overloads and possible burn out as a result of excessive suction pressure, a valve must be provided that will limit the suction pressure at the compressor. To a degree this has been accomplished by the use of pressure limiting types of expansion valves on some systems. However, on other systems, the refrigerant contained in the evaporator will create excessive suction pressure during a prolonged shut-down period, or following the defrosting operation.

The suction pressure regulator has been designed to prevent motor overload caused by excessively high suction pressure. This type of regulator should be used on any installation, where the liquid expansion valve cannot limit the suction pressure and where compressor motor protection is required because of: (1) high starting loads; (2) surges in suction pressure; (3) high suction pressure caused by hot gas defrost; (4) prolonged operation at excessive suction pressures; (5) low voltages and high suction pressure conditions.

Internal and External Pilots

The small size suction pressure regulators are usually built of either the direct acting or internally pilot operated design, while the large size regulators are usually constructed on the externally pilot operated principle. Figure 33 shows the application of an externally pilot operated suction pressure regulator with a solenoid pilot valve for positive shut-off.

Special Low Temperature Application

On low temperature installations where minimum suction line pressure drop is of the utmost importance, it is desirable to operate suction pressure regulators with-

out the normal pressure drop necessary to move the valve through full stroke. This can be accomplished by using the compressor discharge gas to pilot the regulator as shown in Figure 34. In this illustration, (Fig. 34) the pressure drop through the regulator is caused only by friction, and this pressure drop can be made negligible by choosing a regulator with the same port size as the suction line size. The loss, due to the hot gas "bleed" through the regulator, is insignificant because the quantity of gas involved is small.

In conclusion, it is worth repeating that the engineer must fully understand the customer's requirements and expectations of the refrigeration system before selection of the various system components, and especially before the controls and refrigerant flow control devices are selected.

EMPTY STORE . . .

Continued from page 49

nets, a meat cooler 12 x 20', and a produce cooler 8 x 12'. It also included a 7½-hp air conditioning system.

One of the features of the installation is its unusual compactness, especially the centralizing of all compressors—on three tiers—in a single wall area within the rear room of the store. Ten compressors ranging from 1 to 3-hp, with a combined capacity of 20 hp, serve the store's refrigerated cases. A cooling tower is located directly above them on the roof.

Another feature of the layout is an open area just behind one section of the meat cases where pre-cut meat is packaged for self-service. "We think this creates a favorable impression on customers," says Davison. "They like to see this operation in the open, instead of having it cloaked with an aura of mysteriousness such as exists when the operation is done behind the concealment of a back room partition."

With the new supermarket in business, all spaces of the building are now in use, and all the other tenants are happy.

Davison Associates are happy also. The original lead of an empty store space had paid off—and well.

Nothing cools as well as water...
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For every one of the past 30 years, top-flight men in air conditioning and refrigeration have specified far more Marley cooling towers than those of any other make. They know that only with Marley towers can they achieve a perfectly balanced job where price, performance and durability mean greatest customer satisfaction.

Successful contractors know that every cooling tower installation should have individual consideration as to type, location and capacity. And they know that there is a Marley tower to fit every job: induced draft, forced draft, natural draft; for installation indoors or out, and a complete size range of each.

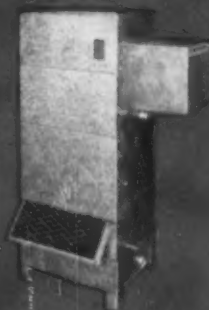
Examine the 1955 Marley line that includes all that's modern in cooling towers. You'll discover that "when you say 'Marley' you've said it all!"

The Marley Company

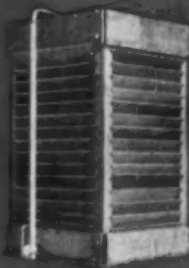
Kansas City, Missouri



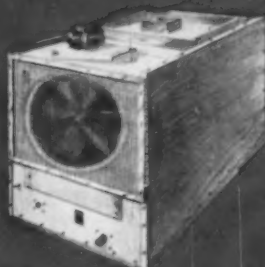
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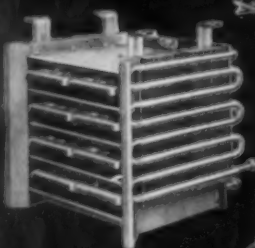
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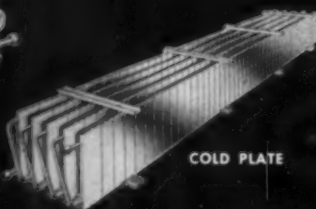
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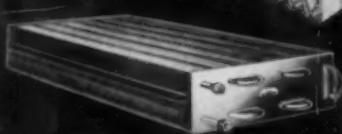
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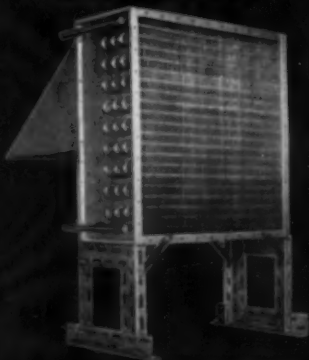
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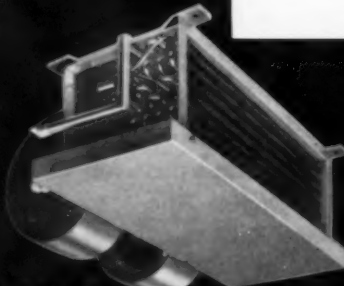
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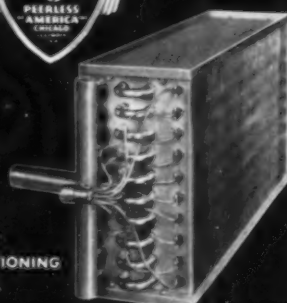
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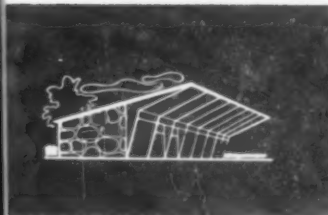
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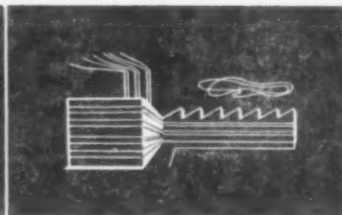
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AIR CONDITIONING SECTION

COOLING • HEATING • CIRCULATION AND HUMIDITY CONTROL



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THIS SPECIAL SECTION is devoted to all phases of Air Conditioning — Residential, Commercial and Industrial, including both self-contained packaged units and central-station type equipment for seasonal or year-round application.

It includes information on the merchandising, selling, installation and maintenance of Air Conditioning equipment, reports on the New Products which are being introduced in this field, and announcements of Literature available from manufacturers.

This section has been developed to afford our readers the convenience of being able to locate quickly all the information on Air Conditioning in each issue in this special section of COMMERCIAL REFRIGERATION AND AIR CONDITIONING.

Industrial processing techniques change
with the years, and air conditioning needs change
with them. Here's how one contractor accomplished this
transition and kept the plant's cooling system operating

Smooth As Silk

HOW a revision in an industrial processing technique may force major changes to be made in a plant's air conditioning system is strikingly illustrated in the experience of the Duffy Silk Co., at Buffalo, N. Y.

This plant processes nylon yarn through three departments in which the material is twisted, re-wound several times, sized, treated with a lubricating compound, and coned. The air conditioning system was designed and installed by Davis Refrigerating Co.

In the processing of the yarn, 86 spinning machines with 392 hp are used.

Several years ago, it was thought that in the spinning department a temperature of 80 F d.b. and 40% relative humidity would be the optimum condition for this stage of processing. On that basis, five ceiling-suspended conditioning units were installed, served by two Worthington Freon condensing units of 50 and 60 hp, respectively. These units introduced air to this area at 54 F dew-point, with 62 grains of moisture per pound of air.

Subsequent experience with nylon caused the company to conclude that 60% relative humidity, while maintaining a temperature of 80 F d.b. would bring further improvement in the product and in the efficiency of its manufacture.

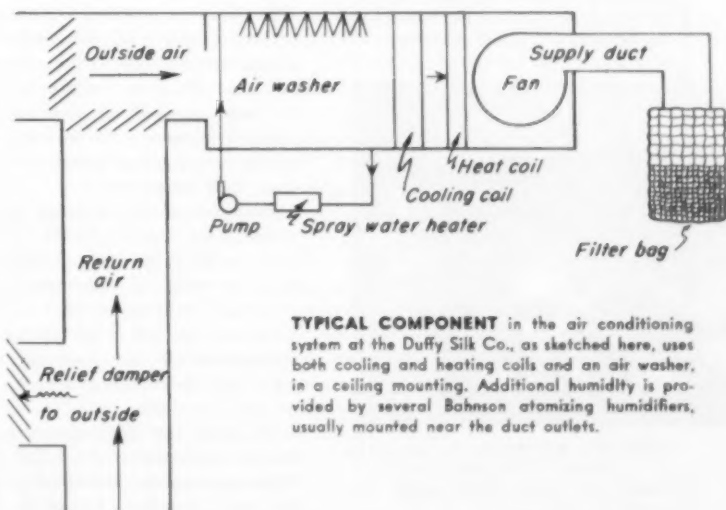
This meant an increased dew-point, with 92 grains of moisture per pound, and that the original conditioning system would leave a deficit of 30 grains of moisture for each pound of air handled.

In consultation with Leonard N. Reed, a vice president of the Davis company, consideration was given to the possibility of solving the new problem by installing additional air handling units. However, Reed pointed out that a more economical procedure would be to in-

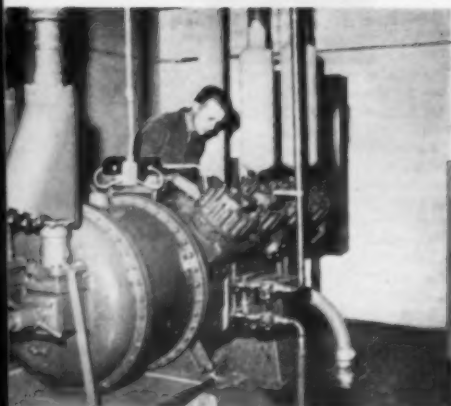
stall a number of Bahnson atomizing humidifiers to eliminate the moisture deficiency.

Accordingly, it was decided to solve the problem in the latter manner, and subsequent experience has shown that the choice was wise. With the humidifiers operating as much as needed, automatic controls maintain temperature and humidity levels within the fine margin of accuracy that efficient production requires.

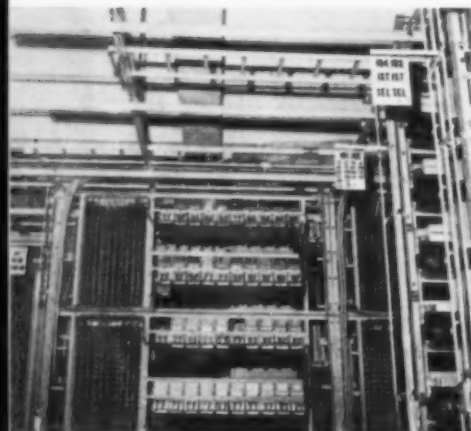
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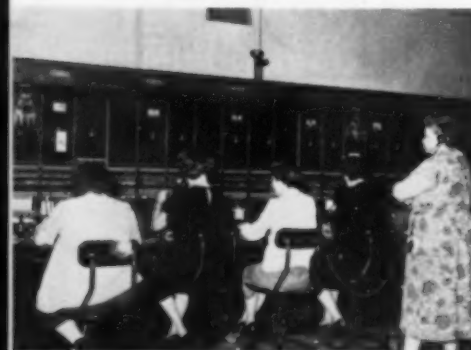
TYPICAL COMPONENT in the air conditioning system at the Duffy Silk Co., as sketched here, uses both cooling and heating coils and an air washer, in a ceiling mounting. Additional humidity is provided by several Bahnson atomizing humidifiers, usually mounted near the duct outlets.



A 100-HP COMPRESSOR in the basement of the telephone exchange building is examined by a maintenance man. It is one of two such units which power the building's air conditioning system.



AIR SUPPLY DUCTS compete for space with banks of intricate electronic equipment behind the scenes in the exchange building. Much of this equipment will not function properly unless both temperature and humidity are closely regulated.



COMFORT COOLING for operators also is provided by the same 200-ton air conditioning system which handles the equipment areas.

Puzzled by a variety of heat loads and temperature-humidity requirements in some air conditioning job you're planning? The experience of this Denver contractor proves you can solve this situation if you . . .

"OVER-POWER" your cooling problems

AIR conditioning is performing many tasks at once, in the recently-completed central telephone exchange building of the Mountain States Telephone & Telegraph Co. in Colorado Springs.

In developing the air conditioning system, the Colorado utility was guided by the need for closely controlled temperature and humidity in the equipment rooms, many of which will function efficiently only when temperature and humidity are closely regulated. Likewise, the building contains a concentration of heat-producing equipment well above the average level, to the point where it was decided to give the system reserve capacity to insure its meeting all climatic conditions, winter or summer, with equal ease.

First telephone exchange headquarters in the Rocky Mountain area to be fully air conditioned, the new building is a three-story structure, including two above-ground levels and a full basement. Dimensions of the building are 140 x 150 feet, with 21,000 sq. ft. of interior space.

To meet the diverse requirements mentioned above, a 200-ton Westinghouse air conditioning system was installed, including the

use of "double ducts" for heating and cooling more than 50 individual zones throughout the building, a 45,000 cfm. exhaust system which will make it possible to use 100% outside air if necessary, and many other unusual features. The system was installed by T. C. Alexander Co. of Denver.

Refrigeration equipment is located in the basement and consists of two 100-hp. Westinghouse reciprocal compressors, connected in parallel, and cooled by an evaporative condenser on the roof of the building. The fresh air intake is likewise located in the roof, and a single basement plenum serves the entire building.

Because there is a sharp variation in the internal heat load created by electronic equipment, it was felt necessary to provide closely-controllable, individual cooling facilities at every room. Consequently, more than 50 "zones", many of them amounting to merely single rooms and shops, are equipped with individual thermostats at the outlet grille.

Each thermostat controls a mixing damper, which "samples the air" and mixes chilled air at 40 F from one supply duct with either steam-heated or fresh outside air,

according to the season, from the side-by-side second duct. Thus, in rooms which feature an extremely high heat load per square foot (the average is $3\frac{1}{2}$ watts per sq. ft.) the amount of chilled air introduced is proportionately increased to maintain an overall 80 F temperature.

Equipment Needs Cooling

With an exhaust fan capacity of 45,000 cfm. on the roof, if possible to operate the system on 100% fresh air, if desired, but for the most part, outside air will be held to approximately 25%. This is necessary, reports Alexander, to prevent accumulation of dust on microscopically-spaced electrical contacts throughout the telephone exchange, all of which are extremely sensitive to such contamination. "The installation of this type of equipment is also the primary reason for cooling," he pointed out. "All of the new telephone dial-system equipment is designed for operation at a set temperature and, therefore, the individual thermostat system, covering so many zones, was necessary to keep the temperature within a two- or three-degree spread."

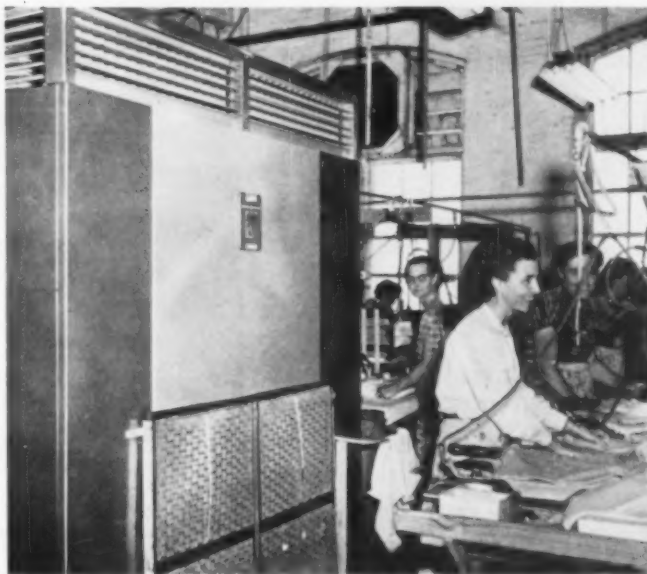
50-Zone System Used

Humidity throughout the building is controlled to a rigid 40%, through a combination at the basement plenum of a moisture spray column and dehumidifier. Because of the high, dry climate of the Colorado plateau, humidity control has not been difficult to effect.

With more than 50 zones, as outlined above, throughout the building, an extremely complex system of duct work has been necessitated. The 65,000 cfm. blower in the basement plenum provides a static pressure of $1\frac{3}{4}$ lbs. to overcome resistance through duct work which diminishes in size from 65" x 25" for the main traveler duct down to 6" x 6" for small, individual offices, test and storage rooms.

Heat is provided by a "double deck" installation in the blower plenum, the top deck providing

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SPECIAL FILTER FRAMES mounted on the lower front panel of each of the 15-ton packaged air conditioners located in heavy lint producing areas (such as the pressing room shown here) of this shirt manufacturing plant are vacuumed daily to remove the lint particles clogging the face of the filters.

Relocated Filters Solve Lint Problem

THE tremendous quantities of lint present in clothing manufacture have always created a major problem in air conditioning clothing factories. Tiny lint particles released in cutting and sewing operations clog ordinary filters in a single day, greatly reducing the efficiency of the units.

This problem has been solved for one clothing firm, the L & H Shirt Co. of Cochrane, Ga., by the installation of units specially equipped to handle lint.

Air conditioning dealer Aaron Torch installed 18 General Electric packaged units throughout the L & H plant. From each of the units located in heavy lint areas he removed the standard filter and re-installed it in a sheet metal frame flush on the front of the unit. Because lint does not penetrate the filter, but collects as a film on the front, it is possible for the clean-up man to vacuum the face of the filters during his nightly rounds. Since the manufacturing area floor and work surfaces must be vacuumed every night, the filters add only a few minutes to the clean-up man's chores.

L & H Shirt Co. employs more than 600 people, and occupies a factory area of 32,500 sq. ft. The 18 air conditioning units range in size from 3 to 15 tons for a total of 203 tons.

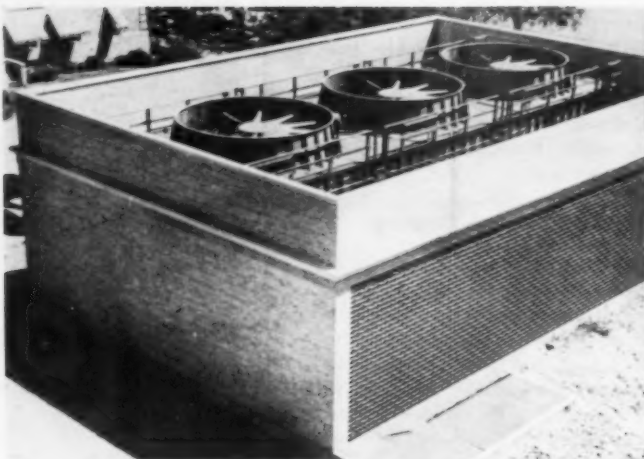
Another problem overcome on the L & H installation was created by the huge working areas and great heat loads of the sewing rooms. These rooms total 16,000 sq. ft. and are crowded with high people and sewing machine load concentrations. They also have large areas with long air throw. To pick up these heavy loads and shorten the throw, units are placed in the middle of the sewing area and arranged for four-way distribution by installing a double deflecting grill in the back of the plenum.

COOPERATIVE EFFORT
ON THE PART OF CONTRACTORS,
CONSULTING ENGINEERS,
AND ARCHITECTS
PROVES THAT

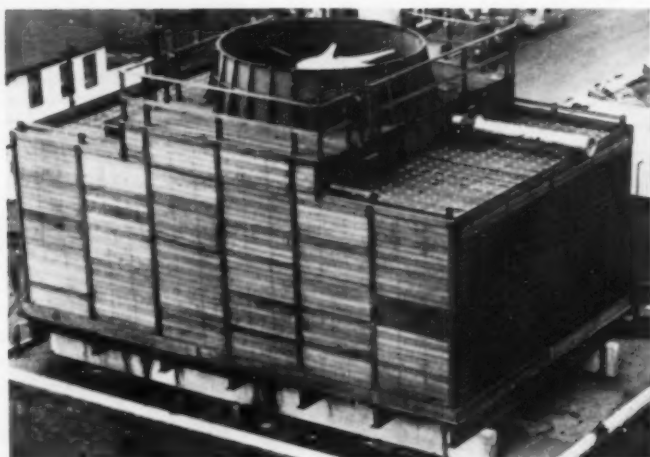
•
•
•
**Cooling
Towers
Can Be
Camouflaged**

COOLING towers don't *have* to lack eye appeal! But with the ever increasing application of large scale air conditioning and refrigeration systems to industrial plants, institutions, and commercial and public buildings throughout the land, and the concurrently increasing need for some sort of water conservation provisions, the cooling tower, rising gaunt and stark from the rooftop, has come to be a familiar—although hardly decorative—part of the American skyline.

While this sight has been calmly accepted by the American public and has become, in fact, almost a symbol of industrial progress, it has long nettled the aesthetic senses of the nation's better architects—and now they're starting to do something about it!



Decorative enclosures like this can provide . . .



. . . concealment for unsightly cooling towers.

How senseless it has seemed for the architect, striving for the very best in modern design, to plan a building with the smoothest and most attractive contours possible, only to have the cooling contractor come along and cap it with the awkward silhouette of the average cooling tower.

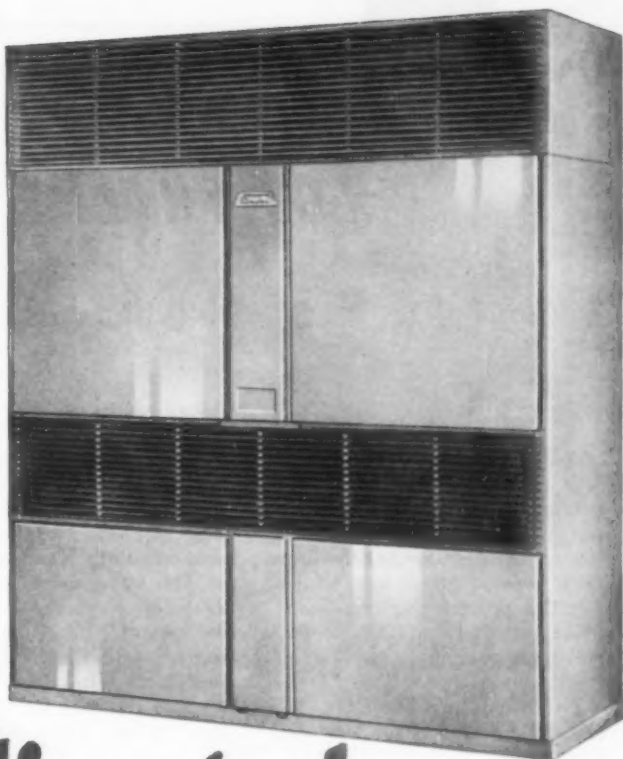
Then too, the decentralization of industrial and business areas in most of the country's larger cities has resulted in these buildings in many cases being located in semi-residential areas where appearance is of paramount importance. This fact has been reflected in more attractive building design, in increased setbacks from the street, and in elaborately planned and meticulously maintained landscaping.

Continued on page 117

Exterior view of the Mueller Climatrol Type 904-10 and 15-hp air conditioner. Note the smart styling, concealed control panel.

NEW!

FOR THE **BIG** COOLING JOBS



Mueller Climatrol

adds **2** new sizes . . . 10- and 15-hp . . . to its
Packaged Air-Conditioner Line



Drawing shows smaller size Type 904 — available in 2, 3, 5, and 7½-hp sizes. Ideal for stores, restaurants, etc. — or with duct systems in homes with radiator or radiant heat.

98th Anniversary

WITH the addition of these two new sizes to the Type 904 line of packaged air conditioners, Mueller Climatrol now gives you a full line to work with — from 2- to 15-hp. These new units are jam-packed with features — take a look.

Type 904-10 — the new 10-hp unit. Smartly styled with a convenient, concealed control panel in front, it stands 98 $\frac{9}{10}$ " high, 82 $\frac{1}{4}$ " wide, 31 $\frac{1}{2}$ " deep. Uses two 5-hp Worthington compressors, has two shell-and-coil-type condensers and two centrifugal blowers. The refrigerant is Freon 22.

Type 904-15 — gives you 15-hp of cooling. It comes in the same casing as the Type 904-10 and requires the same floor space. However, it uses two 7½ hp compressors, and correspondingly larger twin coils, blowers, condensers. Other features are the same.

Both can be used for year 'round air conditioning — provision has been made for adding either a steam or hot-water coil so that these new units can provide space heating in winter, as well as cooling in summer.

Easy to install — the Type 904-10 and 15 are self-contained and come from the factory completely charged and prewired for easy installation.

There's money in the big cooling jobs — so go after it with Mueller Climatrol to make more sales and to add to your reputation as a *comfort expert*. Write for complete data on these units. Mueller Climatrol, Dept. 155, 2055 W. Oklahoma Ave., Milwaukee 15, Wisconsin.

D-100

NEARLY 100 YEARS OF MANUFACTURING QUALITY COMFORT EQUIPMENT

PROPER INSULATION

key to this shop air conditioning job

CULLOM & Ghertner Co. claims the distinction of operating the first completely air conditioned printing shop in the city of Atlanta, Ga.—but the firm really owes this distinction to the fact that properly engineered application of insulation to the building's roof made cooling of the shop feasible.

The office space occupied by this quality firm of printers and

lithographers previously had been air conditioned by Conditioned Air Engineers, Inc. with a 5-ton General Electric packaged unit, coupled with a 5-ton cooling tower. This was a simple proposition, as the office space was located on the ground floor of the two-story section of the building and thus was shielded from the direct sun load on the roof by the second-floor section which was devoted

to the company's photographic activities.

When Culloom & Ghertner called upon the same contractor to air condition the print shop itself, however, it proved to be an entirely different story. The shop area was located in the single-story section of the building, and consequently the roof was exposed continually to the direct rays of the broiling Atlanta sun.



ALUMINUM CEILING INSULATION, applied so as to achieve 99.6% effective coverage, cut the heat load in this one-floor printing shop in Atlanta, Ga., so substantially that air conditioning of the entire shop area was made possible at a reasonable cost.

The roof itself was a flat, pre-fabricated slab of light-weight concrete which didn't do much to stop this heat from penetrating into the working area.

Preliminary load calculations made by Conditioned Air Engineers indicated that, because of the extremely high temperatures existing in the shop during the summer months, air conditioning of this area would not only be prohibitive in cost but unsatisfactory in operation.

Insulation Cuts Heat Load

So insistent was the printing firm on having the job done, however, that Conditioned Air Engineers decided to try another tack. They went into a huddle with North Bros., local insulation contractors, and between them they came up with a practical solution to the problem.

First step in this solution was to have North Bros. insulate the under side of the building's roof with a layer of Alfol No. 4 multiple-ply aluminum foil insulation. A total of 10,000 sq. ft. of this insulation was applied by simply stapling it directly to the concrete slab.

99.6% Coverage Achieved

The bar joists supporting the ceiling were spaced 5' apart, so two 2" batts and one 1" batt were used to cover the area between each pair of joists, with the nailing tabs of the batts being stapled together. In this manner approximately 99.6% effective coverage of the ceiling area was achieved.

Effectiveness of this insulation was dramatically evidenced while the job was in progress, engineers for both the air conditioning and insulation firms report, for in walking from the area which had been insulated into that which had not, the difference in temperature was strikingly felt. Actual checks revealed that prior to the application of the insulation temperatures beneath the flat slab roof would run as high as 115 to 120 F when the outside temperature rose to 100 F. After the insula-

Continued on page 118



COMPOSING ROOM of this quality lithographing plant is air conditioned by two 15-hp packaged units tied into air distribution ducts running the full length of the room. Units are equipped with re-heat coils and humidifiers for accurate year-round control of air conditioners within the plant.

Printers Are Good Prospects

AIR conditioning, long recognized as an important asset in many phases of the graphic arts, now has proved to be particularly valuable in solving many of the production problems in fine-register, multi-color lithographic printing.

Dr. Paul J. Hartsuch, a lithographic consultant, defines sufficient air conditioning as "automatically controlling air at 75 to 80 F with relative humidity of 45 to 50%, and including the addition of moisture to air during dry months as well as refrigeration and humidity control during the summer.

"The variation of moisture in light-sensitive coatings," Hartsuch observes, "is the source of most plate-making troubles experienced in hot, humid weather. It can account for plate scumming on the press, as well as for some image areas failing to take ink in deep etch plates. The best answer is air conditioning.

"With controlled temperature and humidity, a plate department can set up standard procedures for whirling, exposures, developing and etching. More uniform, higher-quality plates can be produced in less time."

He also points out that in the press room air conditioning is important because it permits more predictable ink drying, and eliminates many paper troubles such as wrinkles and change of dimensions on successive multi-color runs. Static electricity also can be reduced by proper humidity control.

Relative humidity range in the press room of such process printing establishments usually is given as 46 to 48%, with the humidity of the stock storage room 5 to 8% above that of the press room.

Many printing plants, it is pointed out, are obtaining excellent production results from the installation of standard human comfort air conditioning systems to handle the summer problems. The humidity control maintained by these systems, while not as critical as that recommended by technical men in the paper and printing fields, nevertheless constitutes a major improvement over conditions existing

Continued on page 103



How To Budget Your Advertising Dollars

ONE of the most important problems every air conditioning dealer has to face is that of arriving at and setting up a consistent, effective program of merchandising to back up—and complement—his retail selling activities.

What dealers need to know is, "How much money should I spend for local newspaper advertising? How many direct-mail promotions should I schedule, and when? How about radio and television spots?" In brief, "How can I make my advertising dollars pay off best?"

The answers to these questions, we believe, will be found in the two articles we have prepared on "How to Budget Your Advertising Dollars", the first of which appears below. The information and charts presented in these articles have been developed by the Merchandising Department of Airtemp Div., Chrysler Corp., as a guide for its residential air conditioning dealers. We are indebted to Chrysler Airtemp for allowing us to digest and adapt this valuable information for our readers.

DO you want to increase your sales? Of course you do!

Do you want to spend your advertising and promotional dollars uselessly? Of course you don't!

There's only one way to assure success to your advertising and sales promotion programs, and make your advertising dollars really pay off:

Budget your advertising and promotion campaign in advance—a year in advance, if you can.

Determine first how much you should spend, and then proportion your expenditures to the months of the year, including periods in which you should concentrate your activity.

After you have completed this, calendar your activity by month—and stick to your calendar.

The first step necessary is to determine your annual budget.

The most successful retail air conditioning and heating dealers report that they spend from 3% to 5% of their gross income from major product sales on advertising and sales promotion. Using the in-between figure of 4% and figuring only income from equipment sales (it would not be possible to include installation charges in this outline), and not including income from sales of allied products, let's estimate an annual budget for a typical dealer (we'll call him Dealer "X") and break it down for quarter-by-quarter expenditures.

Dealer "X" installed approximately 125 air conditioning and heating units and 75 residential air conditioning units during the calendar year ending

Dec. 31, 1954. With a more aggressive program, including broader use of advertising and sales promotion, he hopes to sell 175 heating units and 130 air conditioning units in 1955. Exclusive of installation charges and allied equipment sales, his total retail sales in 1955, we'll say, will amount to \$240,000.

Now to determine Dealer "X's" advertising budget. 4% of the \$240,000 figure gives us \$9600. However, to this figure should be added an extra 2% (or whatever figure applies in your particular case) of purchases furnished by the factory or the distributor for advertising and sales promotional purposes. Assuming that the \$240,000 gross retail sales would mean approximately \$157,000 of factory purchases, 2% of these purchases would total \$3140. This, added to \$9600, would amount to \$12,740 for an annual promotion and advertising budget. To make figuring easier, let's round these figures to \$12,700.

While the key to a successful campaign is a continuous advertising and promotion program, it is wise to concentrate a greater percentage of the budget in the months immediately preceding a cooling or heating season. With this in mind, let's break the budget down

in percentage figures by the months and quarters of the calendar year.

A heating and air conditioning dealer experiencing sales in the quantities given above (2-to-1 ratio cooling dollar sales over heating dollar sales) would witness a retail sales pattern similar to the following:

Month	% of Sales	% of Adv. Budget
January	5%	5%
February	5%	9%
March	9%	9%
April	9%	14%
May	14%	12%
June	12%	8%
July	8%	9%
August	9%	10%
September	10%	8%
October	8%	6%
November	6%	5%
December	5%	5%
	100%	100%

These figures are a breakdown of national averages of sales vs. advertising budget of air conditioning and

Continued on page 109

Check List for Assignment of Advertising Duties Within a Dealer Organization

ITEM	ASSIGN TO	DATE TO COMPLETE INVESTIGATION	COST OF ITEM	ACCEPT OR REJECT	REMARKS
<u>Store & Sales Aids</u>					
Outside identification sign on store. _____					
Clean windows & see that sufficient decals are put on. _____					
Work up functional display in show room. _____					
Requisition and hang banners around show room. _____					
Literature Rack and Stock up to date. _____					
Instruct sales force on correct use of literature. _____					
Bring visual presentation tools for salesmen up to date. _____					
Instruct sales force on how to use visual presentation tools. _____					
Set up training and weekly sales meetings. _____					
<u>Factory Promotions</u>					
Examine manufacturer's national promotions for possible tie-in. _____					
Instruct on and announce to sales force which promotions will be used. _____					
Work out calendar to attend factory and distributor meetings. _____					
<u>Mass Media</u>					
Newspaper and what can be done therein. _____					
List and closing date for advertising in telephone directory. _____					
Coverage, cost and time availability of Radio & TV. _____					
Cost of continuous program with mailing houses and choice of direct mail items. _____					
Work up program outline and announce to members of organization. _____					
Examine billboard availability and cost. _____					
<u>Minor Media</u>					
Check trade and home shows and cost of same. _____					
Possibility of meeting with builder group. _____					
Work on a model home promotion with builder. _____					
Point of installation sign program. _____					
Identification of trucks. _____					
Emblems on service and installation uniforms. _____					
Work out display at local utility and airport. _____					
<u>Local Publicity</u>					
Work out local publicity program. _____					

Ingenious placement of unit air conditioners
enabled this system designer to solve the
problem of a one-floor plant with . . .

Seven Units — No Ducts

AN interesting solution to the problem of air conditioning one-story manufacturing plants has been developed for the new, modern North Hollywood plant of the Harold L. Grubman Co., exclusive manufacturer of brassieres for Jantzen, Inc.

The Grubman plant has a work force of 500, most of them women, and when the hundreds of sewing machines employed are in full operation they produce an exceptionally high heat load. Summer temperatures sometimes exceed 95 F.

Air conditioning system, designed for Grubman by Samuel L. Kaye, Los Angeles mechanical engineer, uses seven 11-ton packaged units, located throughout the plant so as to cause no inconvenience to the normal flow of manufacturing operations, to maintain plant temperature at 75 F. Air is supplied approxi-

mately 7 feet off the floor in four directions from each unit, and returned to the unit approximately 2 feet off the floor. Supply air, being so close to the floor, can be delivered with a minimum of aspiration, reducing the incidence of drafts, turbulence and suspended lint.

An overhead ductwork arrangement was not used because of the difficulty that would be encountered in getting the conditioned air to the floor area where it is needed without conditioning the air above the occupied zone, which extends to approximately 7'6" above the floor. When the area above this level is conditioned, no one benefits but both initial and operating costs are increased.

By using multiple packaged units on a large open floor area, conditioned air can be provided in areas

Continued on page 103



COMFORT AND EFFICIENCY are accomplished in this section of the Grubman plant by the two packaged air conditioners shown. In all, the plant uses seven 11-ton units to maintain a steady 75 F indoors despite outside temperatures as high as 95 F.



Year 'round comfort for institutional
or commercial installations . . .



without costly duct systems!

Modine AIRditioners are the modern, economical way to air-condition old or new buildings

Modine AIRditioners eliminate expensive duct systems and structural alterations. Cold water from a central chiller is piped to each unit for summer cooling. Heating water is supplied by a central boiler. The same piping — water supply and drain — serves for both cooling and heating. Yet, AIRditioners are individually controllable by room occupants.

Choice of four distinct types. Contact the Modine representative listed in your classified phone book or write for Bulletin 754-D — MODINE MFG. CO., 1584 DeKoven Ave., Racine, Wisconsin.



CEILING MODELS — deluxe units for exposed overhead installation. Save floor and wall space.



OVERHEAD MODELS — available with or without plenum and filters for use in furred overhead space.



CONCEALED MODELS — (front panel cutaway) Designed for easy, in-the-wall installation.



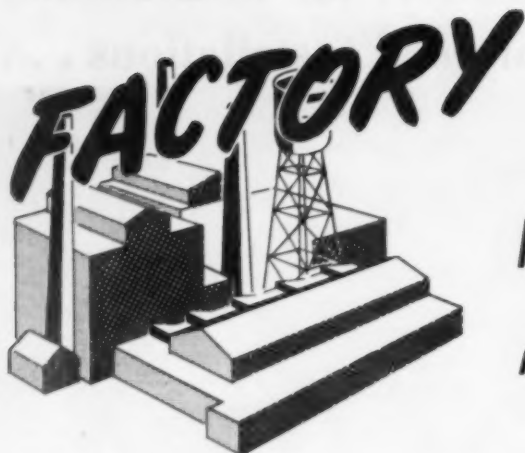
CONSOLE MODELS — for free-standing installation. Can also be recessed so only 6 inches of cabinet shows.

Modine AIRditioners*

*Trademark

A-1262

Circle No. 60 on Reader Service Card



AIR CONDITIONING

presents special problems

by Edward Dowis

Here are some practical pointers on how to obtain maximum performance and most economical operation from industrial air conditioning systems

EVERY factory air conditioning system is a custom installation. It may consist of a standard package unit, but the reasons for its purchase, the conditions under which it operates, and those it is required to maintain are likely to be quite different from those of a commercial or residential system. Special adjustments or accessories may be necessary to achieve desired results.

The primary reason for air conditioning a factory may be either of the following:

1. Better comfort, health, and working conditions for employees, giving management a preferred position in the labor market.
2. Better product. Control of temperature, humidity, and cleanliness permits manufacture under most favorable conditions.
3. Permits more precise machining.
4. Makes possible better layout. Areas otherwise unsuitable may be used for any operation.
5. Reduces distraction from outside noises and permits better use of artificial illumination, resulting in more output per worker.
6. Better preservation of merchandise and raw materials in storage.

All these advantages accrue to the user, once installed, but the primary objective largely determines

the type of equipment suited to a particular job and how it should be installed and adjusted.

Industrial load characteristics are usually quite different from those of office or other occupancy. Internal loads are higher due to machinery and uninsulated steam and hot water lines.

Careful attention to pipe insulation pays off two ways: steam and heat are conserved, and cooling load is reduced. Valves and flanges should receive particular attention. These are often left bare because of labor involved in properly insulating them. Due to high temperature difference, they may add as much as 330 Btu/hr per square foot of exposed surface.

Heat gain due to electrical equipment is generally 3.4 Btu/hr per watt. Thus a 10 kw lighting and motor load, with all equipment in the conditioned space, would add $3.4 \times 10,000$ or 34,000 Btu/hr.

If a motor-generator, converter or transformer supplies current to equipment outside the conditioned area, only the power loss due to friction and resistance will be added to the cooling load. A 10 kw converter, with overall efficiency of 80%, would therefore add only 20% of 34,000 or 6,800 Btu/hr, provided its output is used outside the conditioned area. The same would be true of a motor driving machinery, by belt or otherwise, located outside the conditioned space.

Where any current transforming or converting device supplies equipment within the conditioned area, only the total power input to the converter or transformer should be considered in computing the heat gain. The motors or lights supplied should not be added since their power is included in the input to the converter.

Industrial exhaust systems for removing dust, fumes, and other impurities have important effects on air conditioner performance. If conditioned air is exhausted and replaced with outside air, the added cooling load is important. It can be minimized by introducing replacement air at points where it can

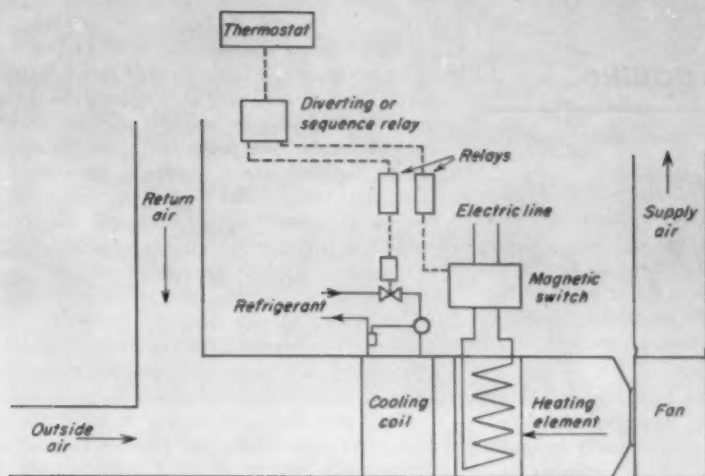


FIG. 1 — Controls for constant temperature.

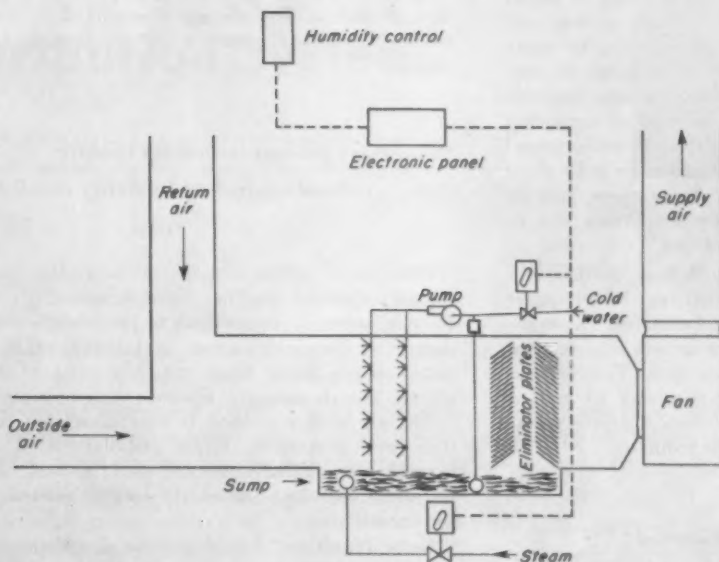


FIG. 2 — Humidifying and dehumidifying equipment.

be exhausted with as little loss of conditioned air as possible, such as directly over grinders, woodworking machinery, or other equipment with exhaust connections.

Hoods, vented to outside, with or without exhaust fans, may be placed over heat emitting equipment and will remove a large percentage of the heat before it gets into the conditioned space. This is doubly important where vapor, as well as sensible heat, is released. Control of static pressure in all parts of an air conditioned building is helpful in maintaining desired conditions in all zones. Furnace and boiler rooms,

heat treating departments, process rooms, and similar areas may require large quantities of air for combustion or other purposes. Static pressure in these rooms may be so reduced that conditioned air from adjacent areas is drawn through doors or other openings in such quantity as to seriously tax the capacity of the system. A ventilator or outside air duct of sufficient capacity to supply the amount of air required, without appreciable pressure loss, should be sufficient. A fan may be desirable to equalize, or even pressurize the area.

Continued on page 86

FACTORY AIR CONDITIONING

Continued from page 85

Separate systems for office and production areas are usually desirable. Certainly the air flow systems should be separate. Cost of equipment to condition and clean factory return air to make it suitable for an executive office would likely be prohibitive. Factory noises have a tendency to travel through common duct systems.

An entirely independent system, including refrigeration, is usually proper for offices, since periods of occupancy and desired conditions will probably be quite different from those in the factory. It is obviously impractical to operate a large factory system to serve offices only.

All types of equipment are adaptable to and are being used in factory air conditioning. Package units are becoming popular because they are easy to install and because power, water and sewer services are readily accessible in factory areas. Horizontal units can be suspended from ceilings or mounted in roof framework. Water chillers, serving remote heating-cooling units are available in all sizes. Direct expansion systems usually have condensing units and coils reasonably close together, and coils distributed so as to avoid long or complicated duct runs. Air washers may be indicated when critical humidity conditions are to be maintained, along with cleanliness.

A constant temperature, regardless of outside conditions, is not ideal for comfort but may be a requirement for certain manufacturing operations. There are many operations where tolerance is held to a few ten thousandths or millionths of an inch. To maintain consistent accuracy, it may be necessary to hold a constant temperature within less than a degree variation, whether cooling or heating is required.

***"... desired results may be obtained
by varying combinations of equipment."***

The possible combinations of heating-cooling equipment and controls to achieve a desired result are almost limitless. Fig. 1 shows a simple arrangement of cooling coil, electric heating element and control devices designed to maintain a constant temperature under a wide range of conditions.

The electric heating element was selected because of instant response and no holdover after shutoff. Upon slight rise or fall of temperature from the selected setting, a sequence or diverting relay, under control of the room or return air thermostat, actuates either the solenoid valve of the cooling coil or the heater switch. A very slight variation in temperature will make the changeover.

Since control instruments in Fig. 1 are assumed to be pneumatic, relays are used to convert the pneumatic impulses to electrical to operate the heater switch and solenoid. Either straight electric or electronic controls could have been used. For the sake of simplicity, detailed wiring diagrams have been omitted, since they would differ with make and type. External wiring is quite simple, consisting of color coded cable run between the various devices.

Instead of a solenoid valve, a modulating motorized valve could be used to throttle chilled water through the coil or to operate dampers to pass air through or around it as temperature required. A steam or hot water coil could be used for heating, controlled in the same manner.

Many processes, particularly in the textile industry, require critical control of relative humidity. Fig. 2 illustrates a system of electronic controls designed to keep humidity within 1% of the control setting. Straight electric and pneumatic controls are also available for the same purpose, though sensitivity will vary with type. As illustrated, rise in humidity reduces resistance in the controller, changing current flow through it. This change is amplified by the electronic panel which contains all adjustments for the system.

***"... many process industries require
critical control of humidity conditions."***

Changes in current through the controller, however minute, cause the amplifier, through relays, to position the cold water or steam valve to provide the required degree of dehumidification or humidification. Cold water sprays, being below the dew point of the air stream, absorb moisture. Heated water adds moisture.

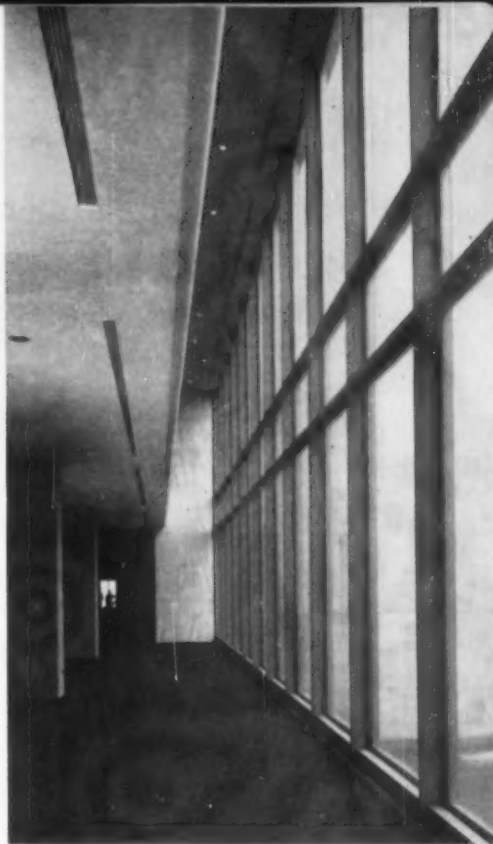
The air washer method is here illustrated because it is well adapted to larger installations. A direct expansion or chilled water coil could as well be used for dehumidifying, and steam jets or wetted filters for humidifying.

Capacity of any humidity control system will be greatly increased by placing a preheating coil ahead of the humidifier, in the air stream. This increases the moisture absorbing capacity of air. Since air is cooled as it absorbs moisture, a reheat coil following the humidifier often is necessary for temperature control.

Package conditioners are usually furnished with disposable filters. Industrial atmosphere may quickly clog such filters to the point where coils frost up and completely fail. Electrostatic air cleaners are gaining popularity in installations of all sizes due to their ability to remove particles as small as smoke, and to the ease with which they can be cleaned.

Filters in industrial plants require a strict cleaning schedule. Visible indicators which indicate when static pressure drop across filters exceeds the maximum permissible are relatively inexpensive and provide warning when filters should be serviced.

Continued on page 110



Design fundamentals of the **ALL-AIR HIGH VELOCITY** distribution system

By F. J. KURTH

Vice President of Engineering

Anemostat Corporation of America

A national survey reveals that today, more than ever, engineers are studying, learning and using high velocity-high temperature differential air distribution. Here is a brief discussion of the advantages of the all-air high velocity system over conventional and mixed cycle (air and water) systems.

1. No Coils — No Clogging — No Odor—There are no coils in the all-air high velocity units. Damp coils collect lint and emit dank odors, and the coils must be cleaned periodically.

2. No Individual Fans — Filters — or Electric Motors — The all-air units operate entirely with air which is processed in the main equipment rooms. The 100% induction units utilize the kinetic energy of the high velocity air to mix primary air with the room air.

3. No Conflict of Trades—The all-air units are installed by the sheet metal trades only.

4. More Effective Use of Outside Air in Spring and Fall—More primary air is delivered to the all-air units than to induction coil units. This allows the engineers to operate in the Spring and Fall on outside air and thereby save refrigeration.

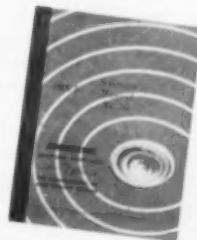
All-air high velocity units offer scientific air diffusion. Each high velocity unit is provided with an aspirating or high induction type air diffuser which is scientifically designed to diffuse air without drafts. Each unit can be pressure balanced by an easy-to-operate balancing device and a calibrated orifice. In fact, the Anemostat all-air high velocity system can be balanced more accurately than other systems and in less than half the time required to balance a low velocity system.

High velocity units require practically no maintenance after installation. They have valves of the non-corrosive, die-cast, "rocket-socket" type, which are patented by the Anemostat Corporation of America. All units can be adapted for the following variations:

1. Single duct for zone control or individual thermostatic or manual remote control.
2. Dual duct for thermostatic control or any other type of control.
3. Single or dual duct units with the diffuser fastened to the unit, or remote from the attenuating unit.
4. Under-the-window, sidewall or ceiling type installations.
5. Can be provided with standard aspirating diffusers or 100% induction type diffusers.
6. Induction type units handle temperature differentials up to 33° below ambient.

Selection Manual Contains Data on High Velocity Units

New Selection Manual 50 gives extensive selection and application data on high velocity all-air distribution systems. Write on your business letterhead for Selection Manual 50 to the Anemostat Corporation of America, 10 E. 39 Street, New York 16, New York.



THE COMMERCIAL REFRIGERATION and AIR CONDITIONING

APPLICATIONS MANUAL

by Hugo C. Smith

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. All problems should be clearly and completely stated and addressed to: **COMMERCIAL REFRIGERATION AND AIR CONDITIONING**, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

Improved Capacity for Air-Cooled Condensers

Seen as Engineering Answer to Water Problem

THERE is a growing trend today towards air condensing in the air conditioning field. The tremendous increase in air conditioning installations in recent years has posed many problems to the water utilities. In many areas it became necessary to pass legislation requiring that water saving devices be installed on all jobs over a certain size—usually 2 to 3 hp. In other areas an annual surcharge was imposed on customers owning air conditioning units without water savers, and some cities met the problem by raising their water rates to all customers—thus making air conditioners with city water cooled condensers expensive to operate.

It is an accepted fact that air cooled condensers have been utilized for years in domestic appliances such as refrigerators, freezers and room air conditioners; and in a wide variety of commercial applications including truck refrigeration units, store fixtures and condensing units of the smaller horsepower sizes. However, some of the limitations of air cooled condensers in the past have retarded its development and use on larger horsepower units and in some applications where air condensing has many inherent advantages.

The air cooled condenser—until recent years—had never been treated as a remote and separate unit. It had developed as a component part of a complete refrigeration cycle and therefore, was subject to certain design limitations as well as application misuse. When used on a fac-

tory assembled condensing unit, the condenser was limited in size by the base dimensions of the unit. Before the advent of hermetic units, the air cooled condenser fan was driven by the compressor motor and the fan discharge covered only a part of the coil.

The combination of these factors produced a condenser that was generally undersized in capacity, noisy due to high fan speed and with poor air distribution over the coil. In order to drive the condenser fan and not overload the compressor motor, the compressor speed had to be reduced with subsequent lowering of the refrigeration capacity of the condensing unit. As a result of poor air distribution and sometimes inadequate coil surface, high head pressures resulted and this further reduced the refrigerating capacity of the system.

When the air cooled condensing unit was installed in the field it was generally tucked away in a small, unventilated storage room or a dirty basement. The condenser fan pulls the dirt and trash from the floor and quickly clogs the air cooled condenser. In many cases the units were installed in such a manner that the hot discharge air from one unit became the inlet air to the adjacent condenser.

The above disadvantages can all be readily overcome by designing and installing the air condenser as a remote and separate unit.

The capacity of an air cooled condenser is directly proportional to the temperature difference between the

entering dry bulb air temperature and the condensing pressure of the refrigerant. For example, with 95 F entering air and a condensing temperature of 125 F the temperature difference is 30°. With the same entering air but condensing at 115 F, the temperature difference is 20° and the capacity of the condenser is reduced 33⅓%.

As the compressor discharge pressure increases, the net refrigeration capacity of the system is reduced. The rating tables of a standard compressor operating at 40 F suction will show that a 10° increase in condensing temperature will reduce the system capacity 7% and increase the brake horsepower requirements 7½%.

The industry trend today is toward hermetic compressors using F-22 or similar refrigerant. On an open type condensing unit the condenser has to dissipate the heat equivalent of the net refrigeration effect plus the heat of compression. On a hermetic system, however, the condenser must also dissipate the motor I²R losses since the pump is suction gas cooled.

Air cooled condenser design today, in light of the errors of the past, should be based on approximately

CORRECTION

In the Applications Manual section manual of our June issue, a rather obvious error appeared which the editors feel should be corrected. In the third column of this article, under the subhead "Load Calculations Shown", the third sentence begins: "For instance, a cooler of 7000 Btu capacity . . ." Actually, this sentence should read ". . . a cooler of 7000 cu.ft. capacity . . ."

1000 cfm of air over the condenser coil per ton of rated capacity, and the coil surface should be made up of 70 to 80 lineal feet of 5/8" O.D. copper tube having 8 fins per inch for each ton of rated capacity at 20° temperature difference.

The trend today is also towards a remote air condenser incorporating a centrifugal blower instead of a propeller fan. The propeller fan generally requires a smaller motor for a given cfm rating than a blower, but an important consideration is the effect of wind pressure on a propeller fan. Even a small increase in static pressure against a propeller fan will overload the fan motor and seriously reduce the fan capacity. With a cen-



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Cold pipe condensation can make a mess of the finest installation—can ruin walls, woodwork and merchandise—unless you take the precaution to use Presstite Insulation Tape. This solves the dripping problem for good.

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alternately for cooling and heating. No matter how thin a coating you put on, the joints are self-sealing, and you can build up the wrappings to any thickness you want. No cements or other coatings are ever needed.

Presstite Tape contains 40% virgin cork and will adhere to any metallic surface. It never dries out, hardens or becomes brittle. Each convenient package contains a 30 ft. roll of tape 2 in. wide and $\frac{1}{8}$ in. thick.

Get Presstite Insulation Tape from your favorite wholesaler, or write Refrigeration Division, VIRGINIA SMELTING Co., Dept. 64, West Norfolk, Va.

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Prevent trouble before it happens—with Presstite.
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Joints are completely self-sealing.

trifugal blower, on the other hand, increased static pressure will unload the motor.

Practical Hints on Installing Air Condensers

A. Locate them as close as possible to the air conditioning unit, taking into account the availability of space, and the necessity of having full air delivery available to the condenser.

B. It is highly desirable to locate the condenser well above the ground level, if it is outdoors. This will prevent any tendency of blocking the coil by drawing in loose dirt or leaves from the ground level, and will also prevent foreign objects coming into contact with the rotating fan at the air outlet. (A $\frac{1}{2}$ " mesh screen should be provided over the air outlet to keep out birds, etc.)

C. Most air condensers can be located either indoors or outdoors, but a sheltered location will prolong the life of the unit.

D. It is also preferable to locate the condenser above the level of the air conditioner wherever possible, to obtain proper subcooling and to permit the maximum flexibility of piping arrangement. Convenient locations which fill these requirements

are in the crawl space in the attic above the cooling equipment room in a slab-type house, and in the garage or car port in a house where the air conditioner is located in the basement. For attic installation, discharge duct connection with the outdoors is always required and inlet ducts may also be required, to prevent attic heat causing high pressure cutout operation, at start-up.

E. The hot gas and liquid lines to the air condenser should be carefully sized from standard line sizing charts to prevent reduced system capacity and hot gas line pulsation and vibration. In general, there are two piping arrangements for connecting to an air condenser: (1) critically charged without receiver and (2) critically charged with liquid receiver. Method (1) is simpler and cheaper, but does not provide for pump-down for servicing. It will operate with the condenser at any reasonable elevation with respect to the air conditioner.

Method (2) involves additional piping but provides full pump-down facilities. For satisfactory operation with this method, the condenser must be located above the liquid receiver. The existing water-cooled condenser can be used as a liquid receiver with

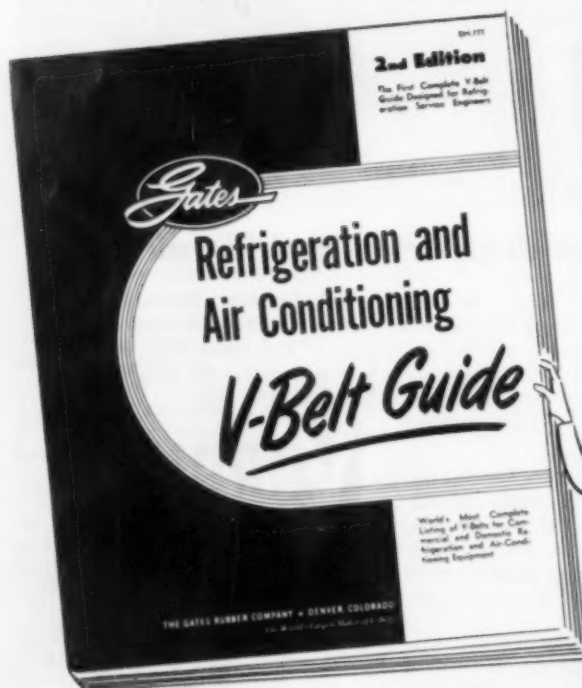
this method, providing it is repiped. The use of the existing water-cooled condenser in its original location in the air conditioner is not recommended in any other piping arrangement than described for method (2).

GENERAL CONTROLS OPENS NEW BUILDING

General Controls Co., Glendale, Calif., recently moved its Cleveland, O., regional office into a new two-story building which will provide expanded facilities for warehousing, sales, and service.

As an extra convenience for customers who are manufacturers of gas heating equipment, the building includes a special laboratory and machine shop to provide correct installation of controls on gas-fired equipment when submitted for testing to the American Gas Association which also has its main laboratory in Cleveland.

J. F. Ray, Fred Weldon, and William A. Roecker were among the company's officials who welcomed guests to a formal opening of the new building.



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World's Largest Maker of V-Belts

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 to qualified refrigeration and air conditioning servicemen

Most complete V-Belt Guide of its kind ever published

A working handbook you will use every day. Covers commercial equipment as well as light machines and domestic appliances.

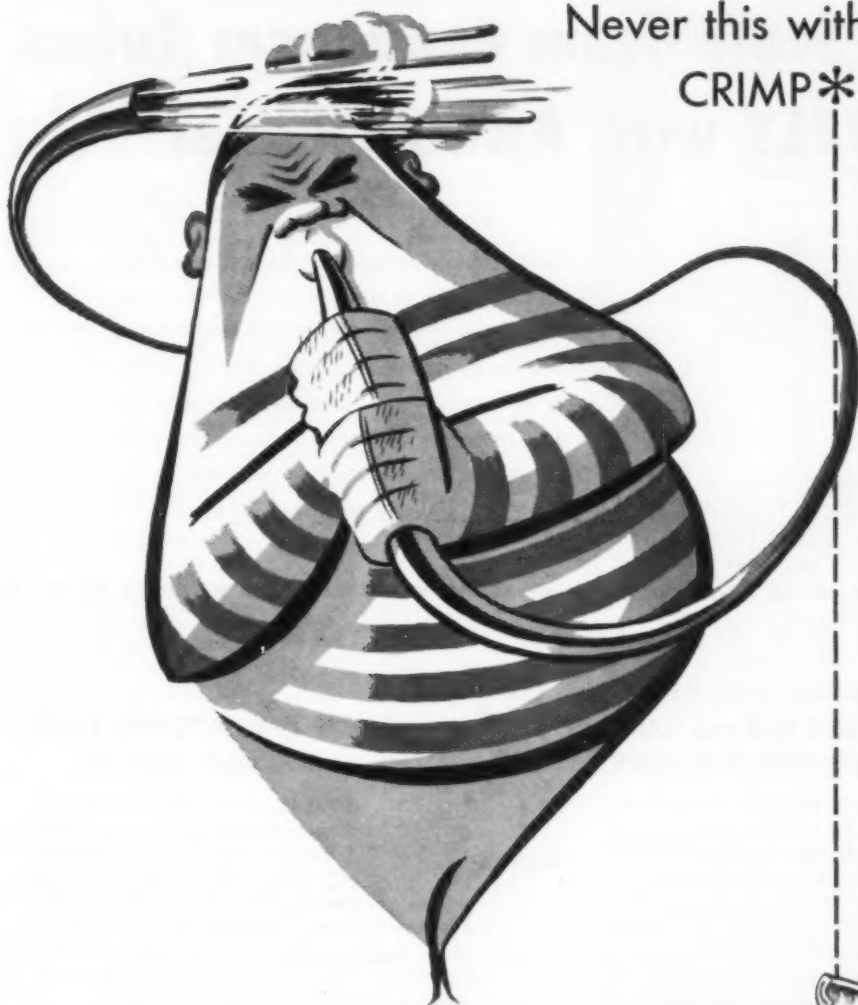
★ Names every major air conditioning and refrigeration unit on the American market

★ Gives complete changeover information—original parts numbers; numbers of other manufacturers' belts; Gates V-Belt replacement numbers

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With the double crimp we put in *both ends* DRYSEAL can arrive in only one condition . . . dry as a bone and clean as a whistle. The double crimping is the final step in manufacturing, immediately following a special cleaning and dehydrating operation, which keeps dirt and moisture from entering the tube. The seal is made in such a way that

DRYSEAL can be passed through any opening large enough for the tube itself. As for bendability—the dead-soft temper of the copper used in DRYSEAL allows you to make the most intricate bends by hand. And its ductility and soft temper make it extremely easy to flare for compression fittings without danger of splitting. Tube sizes— $\frac{1}{4}$ " to $\frac{3}{4}$ " O.D.

The DRYSEAL carton, attractively designed for easy identification, contains one 50-foot coil . . . is easier to handle, light weight, economical and sturdily made to assure protection of the tube in stock and in transit.

REVERE

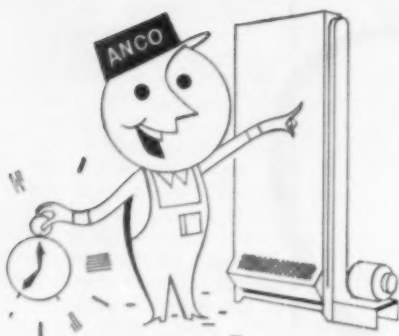
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Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.;
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*** REVERE**
DRYSEAL
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REFRIGERATION
TUBE

Remove Scale from Condenser Tubes **SAFELY with ANCO Cleaner**



ANCO Condenser Cleaner removes scale and rust from condensers without injury to equipment. This exclusive formula, in dry form, is simply dissolved in the sump while the system is in operation. Within 2 to 15 hours, depending on the thickness of the scale, the tubes are clean and the condenser's efficiency restored. ANCO Condenser Cleaner is equally effective in evaporative condensers and those with separate cooling towers.



PROTECT CONDENSERS AGAINST RUST and SCALE with ANCO WATER TREATMENT

New or freshly-cleaned condensers should be protected against scale, rust and pitting with ANCO Cooling Water Treatment. It comes in convenient individual cans, ready to use. Just place the can in the condenser pan or tower basin where the contents gradually dissolve into the cooling water, keeping the system clean and operating at peak efficiency. Absolutely harmless to all metal parts.



KEEP COOLING TOWERS CLEAN with ANCO ALGAECIDE

ANCO Algaecide removes algae and slime from cooling towers and condenser tubes without the necessity of shutting the system down for cleaning. ANCO Algaecide briquettes added at intervals to the sump will prevent algae and slime from forming. Although completely harmless to metals, ANCO Algaecide acts as a preservative in wood cooling towers.



ALL ANCO PRODUCTS are manufactured from exclusive formulas by the Anderson Chemical Company whose sole business is the treatment of water for industrial and commercial uses. ANCO Products are preferred by leading refrigeration and air conditioning service organizations throughout the country. When you sell the best you profit most. Sell ANCO Products.

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USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

VIRTUALLY A TEXTBOOK on high pressure air transmission is the nature of a 48-page bulletin (K-33) issued by Connor Engineering Corp. While cataloging the company's line of high pressure diffusers—combination valves and reducing chambers—the manual undertakes to make available all current data on this essentially new and still advancing air distribution technique. Where high pressure air transmission may be used to advantage, engineering considerations, single and dual duct designs, typical layouts, velocity and pressure factors, duct sizing and construction, and sound control are among the subjects covered, with numerous illustrations, charts, and selection tables.

Circle No. 171 on Reader Service Card

A 64-PAGE GUIDEBOOK covering the field of conventional and high velocity air diffusers has been issued by Anemostat Corp. of America. A special section on high velocity units will be of particular value to contractors, engineers, and architects in air conditioning. Along with drawings, photographs and cut-away views of air diffusers, the manual (No. 50) offers tables and charts showing data on design and performance characteristics of the company's products.

Circle No. 172 on Reader Service Card

REDESIGNED LINE of utility fans, manufactured by Trane Co., are described in a 24-page bulletin (DS-348U). It lists advantages of the new belt-driven and direct-drive centrifugal units, construction features, and types of application. More than half of the booklet is devoted to fan selection data, capacity tables, roughing-in dimensions, and mechanical specifications.

Circle No. 173 on Reader Service Card

MECHANICAL DETAILS and performance data curves of close-coupled centrifugal air conditioning pumps are included in bulletin 5287529E of Allis-Chalmers Mfg. Co. The 6-page folder describes two models, fractional and integral horsepower, in capacities from 150 gpm and heads to 140-ft., to 400 gpm with heads to 165-ft.

Circle No. 174 on Reader Service Card

WATER TREATMENT is the topic of a 40-page booklet, "Handbook on Demineralizing," offered by Cochrane Corp. Information in it deals with the various types of cation and anion exchange materials and data on operating costs of demineralizing. It also indicates when decarbonators or vacuum deaerators are required, and is replete with typical flow diagrams and other technical data.

Circle No. 175 on Reader Service Card

A NEW CATALOG SHEET of Drayer-Hanson, Inc., gives dimensions, capacities, and features of its "Spotaire-VRC" room air conditioners. Two types are described in the bulletin (C-5.21), a concealed unit and a deluxe console unit. Both have been redesigned in performance and styling. Three sizes are for 200, 400, and 600 cfm.

Circle No. 176 on Reader Service Card

(More Air Conditioning Literature on page 94)



No **AIR** apparent

When you round out your air conditioning installations with Kno-Draft Type ABC Air Diffusers, there will be no air apparent to your customers. These are the famous *draftless* diffusers—especially designed for commercial installations—that beat grilles all hollow for maintaining equalized temperature throughout the area and assuring customer comfort.

Additional Kno-Draft ABC advantages: Exclusive snap-lock assembly that cuts installation time. Integral anti-smudge cone to assure clean operation. Special gasketing to prevent air leakage. Sleeve-type damper you can adjust *after installation* for required air volume.

Kno-Draft Type ABC Air Diffusers are designed and priced to help you get more jobs, make more profit. Get the full story. Send today for Bulletin K-34. Connor Engineering Corporation, Dept. C-75, Danbury, Conn.

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are noted for
their performance!

The key to performance
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(Non-Freeze, Type NF
also available)



WATER
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WATER
Removable Plug, Type OR

for heating or
cooling using
steam...water...
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expansion!

5 MODELS TO
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WATER
Removable Header, Type RH



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Circle No. 66 on Reader Service Card

AIR CONDITIONING LITERATURE . . .

Continued from page 93

HOUSE CONSTRUCTION DETAIL to anticipate use of air conditioners is included among information provided by 8-page bulletin of "Vornado" units, issued by O. A. Sutton Corp. Model B200A, packaged 2-hp central system summer conditioner, is also described.

Circle No. 177 on Reader Service Card

WATER PUMPS for air conditioning and refrigeration use are described in a new catalog (M-1955) of Lancaster Pump & Mfg. Co. Information includes non-overloading performance curves and specifications covering pumps with motors from 1/4 to 7 1/2 hp.

Circle No. 178 on Reader Service Card

INSTALLATION OF INSULATION, using anchor base plates and adhesive, is described in a 4-page folder of Miracle Adhesives Corp. Photographs show the easy steps of the operation on actual jobs. The information covers interior as well as exterior applications.

Circle No. 179 on Reader Service Card

ENCLOSED AND HIDEAWAY models of remote-type room air conditioning units are pictured and described by International Mfg. Co. in a 4-page catalog insert (Bulletin 301). The units are in 3/4, 1, and 1 1/2-ton sizes.

Circle No. 180 on Reader Service Card

(Turn to page 57 for more Useful Literature)

ASPIR-JET
THE EFFICIENT
SPRAY NOZZLE



This new plastic spray nozzle has rapidly gained the preference of atmospheric cooling tower manufacturers and air conditioning contractors in the southwest. The unique Aspir-Jet design assures increased water break-up and distribution with nozzle pressures as low as one-half pound.

The butyrate plastic used to make Aspir-Jets does not corrode, and a year's usage left no indication of erosion. For improved atmospheric cooling tower efficiency, and longer nozzle life... switch to Aspir-Jets! Made in three sizes—3, 5 and 7 gallon per minute capacity.

• Available through Refrigeration and Air Conditioning wholesalers.

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if you are not now using or stocking this astounding new product, wire or write

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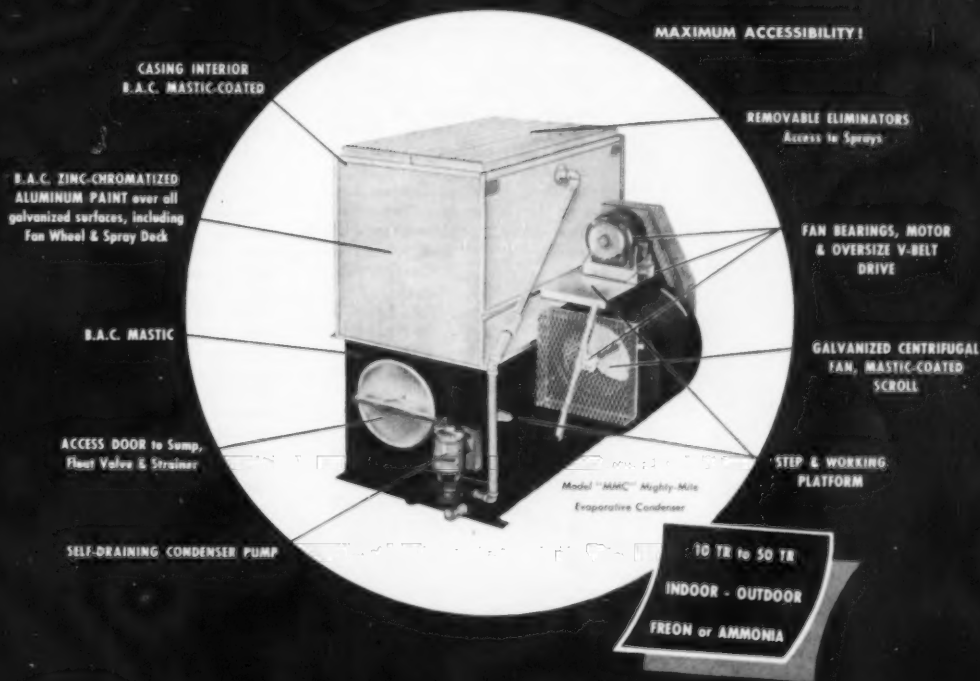
Circle No. 67 on Reader Service Card

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Low Cost—High Quality!

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'MMT' COOLING TOWERS



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Other Models — Evaporative Condensers - 10 TR to 300 TR / Cooling Towers - 10 TR to 240 TR . . . in single, factory-assembled units!

WHAT'S NEW

in Air Conditioning Equipment

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

(For more New Products turn to page 60)

Boltless Tower

Product: "SRS" natural draft cooling tower.

Manufacturer: Dover Mfg. Co., Independence, Mo.

Features: Two men can assemble this boltless tower in 20 minutes. Redwood or steel louvers fit into slots of vertical posts. All metal parts are hot-dip galvanized after



fabrication. Basin and crown are one-piece welded units, held together with single adjustable tie rod. Tonnage capacities range from 3 to 15. Top and base are joined by single adjustable tie rod.

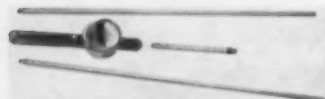
Circle No. 131 on Reader Service Card

Probing Thermometer

Product: "Veco Tempprobe" electric portable thermometer with extension tubes.

Manufacturer: Victory Engineering Corp., Union, N.J.

Features: Thermometer readings are given in response to push button



when sensing probe is extended to spot desired. Probe uses a thermistor, tiny semi-conducting bead which is sensitive to temperatures. Extension tubes increase the reaching range. Entire unit weighs only

22 ounces. Suggested uses are in air conditioning, heating, warehousing, and mobile refrigeration.

Circle No. 132 on Reader Service Card

Space-Saver Units

Product: Horizontal-type conditioners for ceiling or shelf mounting, for commercial applications.

Manufacturer: General Electric Co., Bloomfield, N.J.

Features: Completely packaged units are in both water and air-cooled styles, and in 3, 5, and 7½-ton capacities. They are designed to save valuable floor space for stores, restaurants, and factories. Motor, compressor, and condenser are permanently sealed in steel and lubricated for life. Refrigeration system is covered by a five-year warranty which provides for replacement with a new one; old one is returned to factory for servicing. Compressor, fans, and drives are resiliently mounted. Unit is painted gray to blend with any interior. A completely automatic "muggy-weather" control is included to give extra mois-



ture removal on humid days. Accessories include a heating coil which can be used with steam or hot water, and a three-way directional air distributor.

Circle No. 146 on Reader Service Card

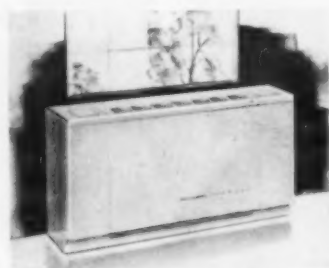
Room Convectors

Product: New line of room cabinet units for central station water-fed heating and cooling.

Manufacturer: Heating Div., Fedders-Quigan Corp., Trenton, N.J.

Features: Multi-speed blower circulates air which has been cooled

or heated by water-fed pipes. Inlet in rear permits addition of fresh air, if desired. Filters, dampers, coils and other elements are housed in decorative cabinet. Quiet operation is assured by centrifugal type alum-



inum blowers. Cabinet may be installed free standing or recessed up to 5". Only three pipe connections are required, including drain. Six functions include heating, cooling, ventilating, circulating, filtering, and dehumidifying.

Circle No. 133 on Reader Service Card

9" Conditioner

Product: "Unitrane" fan-coil room air units for heating-cooling which are only 9" deep.

Manufacturer: Trane Co., La Crosse, Wis.

Features: Designed especially for many-room buildings, four basic models are available: vertical cabinets, vertical concealed, horizontal ceiling-mounted cabinets, and horizontal concealed. Each type also is convertible. Trane "Delta-Flo" fin 2-row coil provides as much heat transfer capacity as larger 4-row coil previously used. Units are served with chilled or hot water from remote sources; can be individually turned off without affecting general system.

Circle No. 134 on Reader Service Card

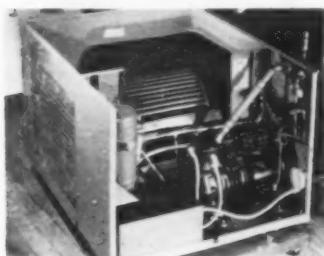
New Air-Cooled Line

Product: Air-cooled systems in remote and self-contained units added to water-cooled line.

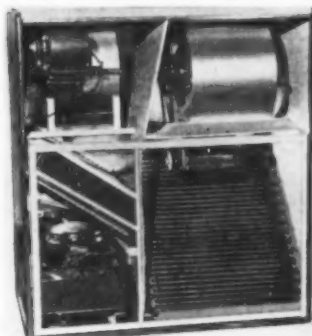
Manufacturer: Lennox Furnace Co., Marshalltown, Iowa.

Features: New remote models available in 3 and 5-ton sizes; new self-contained units are in 2 and 3-ton sizes. In remote series, compressor, condenser, blower, drier, and automatic controls are housed in weather-proof cabinet that may be installed indoors or outdoors. Evaporator, expansion valve and filter are built into compact cabinet that may be set on top, below, or at side of forced air furnace. Large blowers for condensers are located to muffle noise. Expansion chamber at blower outlet has added muffling effect while permitting blower to

handle more air with less power. Steel cabinet is phosphated and specially treated on outside for corrosion protection before enameling. Inside is undercoated against corrosion and for sound deadening. Low side is offered in models for up-flow, down-flow, and horizontal performance; some using furnace blower,



Remote High Side Unit



Self-Contained Unit

others with their own. In the self-contained series, each unit is charged at factory and welded shut. These models have a condenser blower large enough to handle 900-1000 cfm per ton of cooling. They also include evaporator blower, pre-wired automatic control panel, and a combination heating-cooling thermostat with switch for changing from heating to cooling operation. Improved line of water-cooled units are in 2, 3, 4, 5, and 6-ton sizes.

Circle No. 135 on Reader Service Card

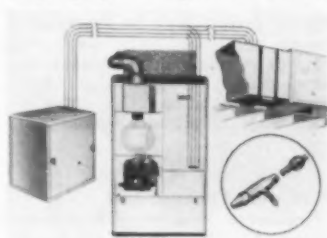
"Split" Remote System

Product: "Luxaire" air-cooled remote cooling systems completely charged and hermetically sealed at factory, for use with year-round air conditioners or in duct installations with forced air furnaces.

Manufacturer: C. A. Olsen Mfg. Co., Elyria, Ohio.

Features: Compressor-condenser section is charged and sealed at factory. Coil section includes 30' flexi-

ble copper line with "Herma-Seal" coupling, permitting union without



loss of line pressure. Units are of 2 and 3-ton sizes, with dual compres-

sors, condensers, and evaporators, both controlled by same thermostat. One circuit is for regular operation, with the second used only when load is heavy.

Circle No. 136 on Reader Service Card

Humidity Meter

Product: Psychrometer measures relative humidity and temperatures quickly, and is easily portable.

Manufacturer: G.M. Mfg. Co., New York, N.Y.

Features: Instrument, useful in air conditioning and refrigeration for estimating job requirements and per-

MAX SCHINKE,
Service manager,
ADMIRAL CORP.
says

ELIMINATES ROOM
AIR CONDITIONING
INSTALLATION HEADACHES
DUE TO INADEQUATE
WIRING

FOR SINGLE PHASE,
117 V, 60 CYCLE, AC
POWER LINES

ONLY
\$29.95

MR. SCHINKE also says that Admiral uses the new Simpson THERM-O-METER, Model 388, for all appliance temperature checks in the National Service Dept.

The -50° to +1000° F temperature range of Model 388 covers freezers, refrigeration, air conditioning, cooking ranges, stack temperatures, and ambient temperature rises of electrical components . . . all on one 7" scale.

Model 388 with 1 thermocouple probe . . . \$59.50
Model 388-3 Lead with 1 thermocouple probe . . . \$64.50
Additional probes . . . \$4.95



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LINE-O-METER
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MODEL 397
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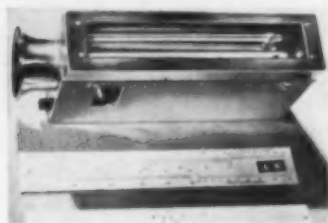
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formance, gives exceptionally fast and easy readings when used with



specially simplified slide rule which is included. It weighs only 1½ lbs.,

and is only 7½" long. Designed for extreme accuracy, it has provisions to avoid sunlight radiation and motor-heat errors, and its thermometers are in matched pairs. Reservoir provides wetting of wick on wet-bulb thermometer. Three flashlight batteries furnish power.
Circle No. 137 on Reader Service Card

Hot-Cold Thermostat

Product: New heavy-duty thermostat (No. 801-A3) for all types of heating and air conditioning units.
Manufacturer: Fulton Sylphon



"Nothing is more refreshing than sparkling ice . . . the more it sparkles . . . the more it refreshes"

The only way to make pure, sparkling ice is with clean, properly functioning equipment. However, most cube or flake ice machines accumulate impurities from the water supply and from the air that will form deposits of slime, scale and dirt. These contaminants ruin operating efficiencies and cause such common ice troubles as opaque ice, cube lock, slow freezing and offensive odors and taste.

A safe, sure way of removing these deposits, promptly and without injury to the machines or the persons cleaning them, is to use **CSCO ICE MACHINE CLEANER POWDER**. It is packed in individual 8 oz. plastic bags. The contents of one bag dissolved in the water tray or freezing compartment and allowed to circulate cures the trouble in 20 to 30 minutes. No long shut-down is required. The ice machine need not be dismounted.

And the powder is not harmful from a health standpoint when used as directed.

Ice machines cleaned with **CSCO ICE MACHINE CLEANER POWDER** produce a maximum amount of pure, healthful ice. For harder, clearer ice—that sparkles like a diamond—clean your ice machine regularly with **ICE MACHINE CLEANER POWDER**.

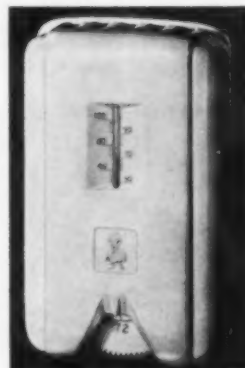
Ask your wholesaler for this fine CSCO product or write —



Circle No. 70 on Reader Service Card

Div., Robertshaw-Fulton Controls Co., Knoxville, Tenn.

Features: Combination unit has differential of ½ F, and requires only a simple connection with a



manually operated summer-winter switch to provide change from heating to cooling, or reverse. The instrument, UL approved, has a switch rating of 20 amperes, non-inductive at 250 volts; ¾-hp motor load at 115 volts, and 1½-hp motor load at 230 volts. It mounts directly on a standard 2" x 3" switch box. Temperature range is from 64 to 80 F.

Circle No. 138 on Reader Service Card

Air Driers

Product: Mechanically refrigerated air driers.

Manufacturer: Murphy & Miller, Inc., Chicago, Ill.

Features: Output ranges from 4 to 55 cfm. Models are in ¼, ¾, 1½, 3, and 5-hp sizes. Operation is



completely automatic including automatic cycling controls. Condensation process removes entrapped oil and provides relatively pure as well as dry air output. Manual reactivation is eliminated by dual, all-copper tube assembly, heater, and automatic control which alternately defrosts each tank while the refrigeration system provides cooling for the tube previously defrosted. Capacities are

based on 80 F air entering at 60 psi. Increased entering pressure increases the drying capacity. Units are ready for connection to supply line and electrical outlet. Circle No. 147 on Reader Service Card

Thermostat Clock

Product: "Golden Circle" thermostat mounted in electric wall clock, for electronic home temperature control.

Manufacturer: Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Features: New thermostat, in several models, for "Moduflow" systems, includes one type combined with electric clock for automatic night temperature setback. Desired day and night temperatures are set by adjusting knurled rings on inset circular thermostat face. Works with an outdoor temperature sensing element and a "brain" control center to adjust indoor temperature accord-



ing to outdoor weather changes. Control center operates on a 24-volt circuit and is supplied with a transformer and 15 feet of cable with a remote terminal block to make it possible to mount unit wherever it may be desired.

Circle No. 139 on Reader Service Card

Custom Room Unit

Product: Model R102M, 1½-hp unit added to custom line of room air conditioners.

Manufacturer: General Electric Co., Louisville, Ky.

Features: New model, for 230 volts, is designed to cool areas up to 1000 sq. ft., and has dehumidification capacity of 4 pints an hour. It has "drape-line designed" flush mount construction which permits installation flush with inside wall, making it possible to close curtains and drapes when not in operation. If interior-projected position is preferred, flat top can be used as shelf. Controls are concealed by decorative panel at base of cabin front. Choice of blonde or mahogany finish

is available. Exterior weatherhood is finished with two-tone baked enamel. Three rotator air directors are located behind front grille, each individually adjustable. Aluminum filter eliminates need for replacement. Other models in custom line include ½, ¾, and 1 hp units. Circle No. 140 on Reader Service Card

Resistor Thermostat

Product: New room thermostat with "cooling anticipation" device, for air conditioning applications.

Manufacturer: White-Rodgers Electric Co., St. Louis, Mo.

Features: Small resistor is in parallel with the cycling contacts. When contacts are closed, no current flows through the resistor as it is shorted out by the contacts. When contacts are open, the resistor is in series with the control transformer and with the motor starter, relay coil or refrigerant valve. Because of its high resistance, not enough current flows through the resistor to operate the low voltage cooling equipment control, but enough will pass

BUY FROM YOUR
REFRIGERATION WHOLESALER

MOTOR
CAPACITORS
BY C-D



CONSISTENTLY
DEPENDABLE

Talk to the engineers who designed the motors you repair! Ask them why, for 45 years, C-D capacitors have been "the standard" for all the really heavy load motor starting jobs. They'll tell you: "C-D means Consistently Dependable." No wonder there are more C-D capacitors in use today than any other make! Always insist on C-D capacitors—there's just the right type for every motor made. Ask your C-D distributor for your free copy of C-D's famous motor capacitor Manual and Catalog No. 163. He's listed in your classified 'phone book. Dept. CR 75 Cornell-Dubilier Electric Corporation, South Plainfield, New Jersey.

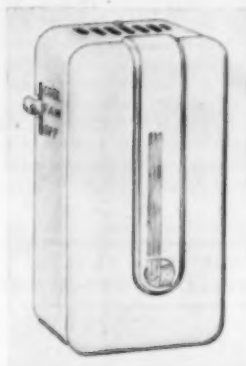


CONSISTENTLY DEPENDABLE
CORNELL-DUBILIER CAPACITORS

PLANTS IN SOUTH PLAINFIELD, N. J.; NEW BEDFORD, WORCESTER AND CAMBRIDGE, MASS.; PROVIDENCE AND HOPE VALLEY, R. I.; INDIANAPOLIS, IND.; SANFORD AND PUGUAY SPRINGS, N. C.; SUBSIDIARY: THE RADIANT CORPORATION, CLEVELAND, O.
THERE ARE MORE C-D CAPACITORS IN USE TODAY THAN ANY OTHER MAKE

Circle No. 71 on Reader Service Card

through to add artificial heat to the sensitive element of the thermostat during the "off" period. This enables



thermostat to hold the operating differential at a minimum. Units are also available with a manual selector switch.

Circle No. 141 on Reader Service Card

Condensate Disposer

Product: Disposal unit for condensate from air conditioning and refrigeration equipment.

Manufacturer: Murphey Equipment Co., Decatur, Ga.

Features: Self-contained design has receiver above pump to insure 100% flooded suction. Float switch actuated by a mercury tube provides positive control and protects pump from running empty. Galvanized receiver also has neoprene coating. Tank holds two gallons. Motor is 1/6 hp, 115 or 220 volts. Capacity is 5 gpm at 15' t.d.h. Overall size is 16½ x 15 x 9¾".

Circle No. 142 on Reader Service Card

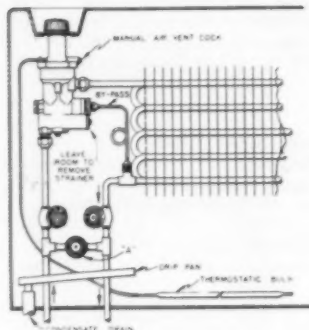
Change-Over Valve

Product: "Selectaflow" automatic valve for change-over in seasonal hot-cold wet systems.

Manufacturer: Detroit Controls Corp., Detroit, Mich.

Features: Change-over is accomplished thermostatically from temperature of incoming water. Adjustment knob on valve allows owner to select temperature most comfortable. Once set, it provides same temperature winter and summer and need never be touched again. Operation of valve is completely mechanical; no pneumatic lines or electrical connections are required. Components are corrosion resistant. Unit

is available in two capacities, and size can be determined by correlat-



ing pressure drop with rate of water flow.

Circle No. 143 on Reader Service Card

Air Diffuser

Product: Dual duct high pressure air diffuser providing temperature and volume control.

Manufacturer: Connor Engineering Corp., New York, N.Y.

Features: Both air inlets are fitted with dampers consisting of double perforated concentric sleeves and felt edged pistons. Outer sleeves slid over fixed inner sleeves, gov-

BUY FROM YOUR
REFRIGERATION WHOLESALER

REMOVE CONDENSATE WATER FROM AIR CONDITIONING SYSTEMS



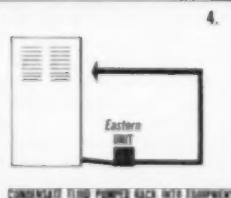
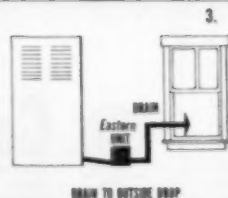
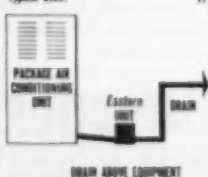
A completely automatic, foolproof unit designed to remove hot or cold condensate fluids from the receiver tank and pump it to an outside drain. Simple to install with air conditioning equipment, it gives quiet and reliable performance.

Eastern Model 3, Type 100:

Tank capacity 0.8 gallon. Centrifugal pump delivery approximately 4½ GPM at 0 P.S.I. and shut off of 12½ P.S.I. Motor 1/40 H.P., 115 volt. Weight 23 pounds. Mercury control switch. Size 3½ inches wide, 10 inches long, 11¾ inches high.

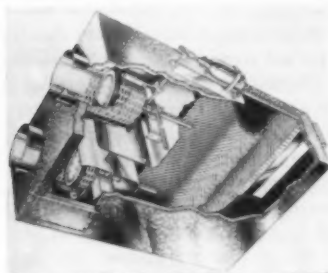
EASTERN INDUSTRIES, INCORPORATED
100 SKIFF STREET, HAMDEN, CONN.

Typical Uses:



Circle No. 72 on Reader Service Card

erning size of holes through which air flows. Amount one side is open is in ratio to amount other side is



closed, thus blending hot and cold as desired under thermostatic control. Capacities range to 1000 cfm. Circle No. 144 on Reader Service Card

Water Conditioner

Product: "Micromet" plates of phosphate for controlling scale and corrosion in cooling water systems.

Manufacturer: Calgon, Inc., Pittsburgh, Pa.

Features: Up to 10 pounds of chemical, in new shape, is placed in plastic mesh bag which is hung in water spray of cooling tower or evaporative condenser; no cutting of



water lines or other plumbing is necessary. One or two bags for each 20-ton capacity will last about six months. Companion items are Calgon scale remover, an inhibited acid in powder form, and Calgon Algaecide pellets to stop algae and slime bacteria growths.

Circle No. 145 on Reader Service Card

PENGUIN APPOINTS SOLE SALES AGENT

Frank-Dewey Co., Inc. has been named sole sales agency for air-conditioning and refrigerated merchandising cabinets manufactured by Penguin, Inc. The agency, headed by Marvin D. Swain, is also sole distributor for Allen cooler and Rovon electric refrigeration systems for trucks.

AEROVOX ACQUIRES LUTHER COMPANY

Aerovox Corp., New Bedford, Mass., has announced acquisition of Luther Mfg. Co., Olean, N.Y.

The New Bedford concern is a manufacturer of numerous products including capacitors and specialized electronic equipment.

Luther Mfg. Co. has been in operation more than 75 years and will continue as a subsidiary of Aerovox. James H. Luther will continue as president of the Olean

company and has become a vice-president of the other concern.

APPOINTED BY TYWEL

Tropicaire Engineering Co. has been appointed direct-factory representative in Florida for the Tywel Mfg. Corp., makers of built-in wall air conditioning units. Pioneers in air conditioning since 1934, Tropicaire is the first factory representative in the United States to be named by Tywel.

We make no test tube claims

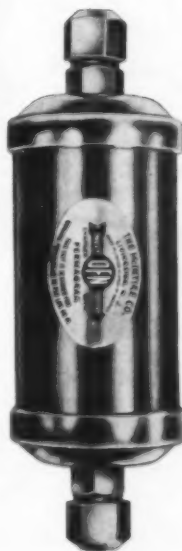
Beware of dramatic demonstrations, figures and claims for moisture and acid removal under *controlled* conditions. The real test is what actually happens inside a hard-working refrigeration system, under all kinds of operating conditions. That's why—



Every McIntire DC FILTER-DRIER

is

rated and guaranteed
on field-proven experience



By this method you are insured of the highest on-the-job drying performance and practical, usable data you can depend on.

Valuable Facts, Figures, Data in New Catalog!

Every claim, every selection chart, every rating we make for DFN driers is based on countless field tests and installation reports. They take the hocus-pocus and guesswork out of drying—give you an easy, accurate way to know what size DFN drier to use, its capacity, its pressure drop, for each system.

Ask your wholesaler for a copy of the New DFN Catalog R-9, covering driers, filters, strainers and accessories. Or, write us.



THE MCINTIRE COMPANY • Livingston 11, N.J.

Since 1925

DRIERS • FILTERS • STRAINERS

Circle No. 73 on Reader Service Card

SMOOTH AS SILK . . .

Continued from page 73

The second stage of processing, on the third floor of the plant, applies a liquid coating to the yarn while rewinding it from one set of spools to another. This is an especially critical operation requiring extremely accurate control of temperature and humidity.

If the humidity here went too high, the coating would be sticky.

If too low, the coating would be rough and would tend to crack. In either case, the ultimate users of the yarn—for weaving or knitting—would encounter serious troubles. Hence, the Duffy plant maintains controls which prevent more than 1% plus or minus variation from the specific temperature and humidity desired.

This phase of the operation uses air washers with cooling and heating coils, connected to three Worthington condensing units, two of them 7½ hp, and the third of

15 hp. A constant leaving dew-point is maintained by the operation of the outside and return air dampers as long as the outside conditions are favorable to maintain the required inside conditions without the use of refrigeration. A water heater in the spray water lines increases the leaving dew-point whenever required.

When refrigeration is necessary, the outside air damper is returned to a minimum setting and the dewpoint is maintained by sequence operation of the Freon condensing units.

Air Washing Important

In all cases, the room dry bulb is maintained by a reheat coil and the conditions are regulated by Johnson service pneumatic controls at 80 F d.b. and 50% relative humidity.

On the second floor there are 55 machines with a total of 110 hp for the coning operation in which the lubricating substance is applied during another rewinding process. This area involves another air washer application with two 30-hp Freon condensing units connected to the cooling coils. Conditions here are automatically controlled at 80 F d.b., and 63% relative humidity.

First of the conditioning units in this plant were installed by the Davis company 17 years ago, and are still giving satisfaction today.

Special Filters Used

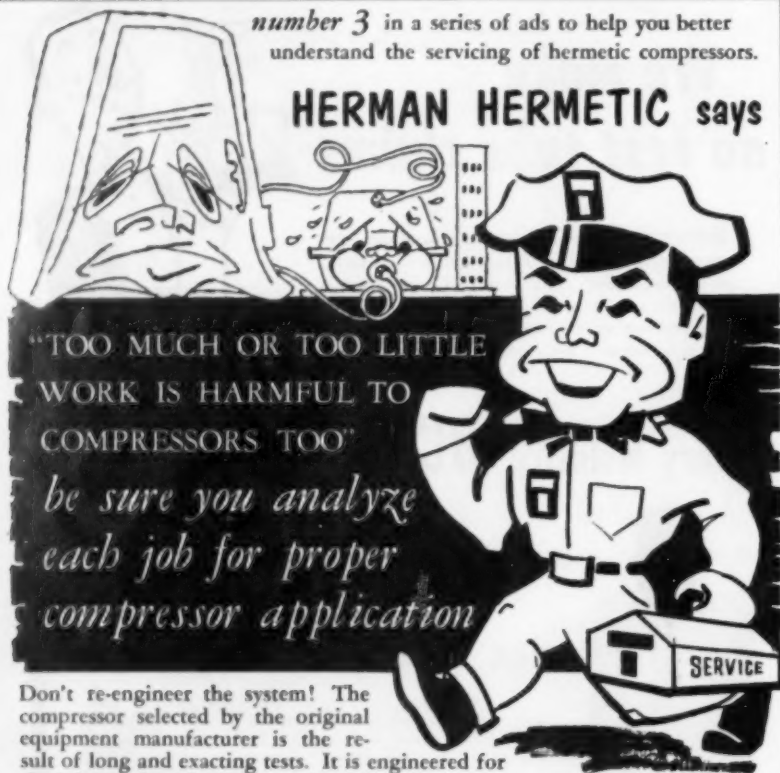
Presiding over the conditioning and all other mechanical operations of this plant is Fred Welz, plant superintendent. He also is the designer of a special filtering device which the air system uses.

The filters, as designed by Welz, are attached wherever there is an air outlet in the ducts. Each filter is simply a loosely-knit cotton bag, cylindrical in shape, and with a closed bottom. Any foreign particles in the air blown downward from the duct tend to lodge at the bottom of the deep bag, while the air escapes through the larger meshes in the upper portion.

As a double safeguard against the dirt-dust hazard these filters are important, for smudged lengths of yarn cannot be tolerated. From time to time, as required, the filters are easily laundered.

number 3 in a series of ads to help you better understand the servicing of hermetic compressors.

HERMAN HERMETIC says



"TOO MUCH OR TOO LITTLE
WORK IS HARMFUL TO
COMPRESSORS TOO"

*be sure you analyze
each job for proper
compressor application*

Don't re-engineer the system! The compressor selected by the original equipment manufacturer is the result of long and exacting tests. It is engineered for the job and should only be replaced by a like model or authorized replacement.

Most important, the serviceman should not change or substitute refrigerants. Freon 12 and Freon 22 have entirely different characteristics and cannot be used interchangeably. Since the motor and electrical components are balanced according to the refrigerant, any change in this factor alters the amount of work done by the motor and the system is out of balance. If the compressor works too long or too hard, the motor may burn out or the electrical components may fail. If it doesn't work enough the compressor will lose efficiency, give poor performance and show increased operating cost. Either way, you will have a dissatisfied customer and costly service call-backs.

Protect yourself by putting the *right* compressor on the application and always use the refrigerant marked on the compressor housing!



TECUMSEH PRODUCTS
TECUMSEH, MICH.
MARION, OHIO
Company
EXPORT DEPT.:

P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Mich.

Circle No. 74 on Reader Service Card

World's Largest
Producer of
Compressors for the
Refrigeration Industry

PRINTERS ARE GOOD PROSPECTS . . .

Continued from page 79

in these shops prior to the installation of air conditioning equipment.

For the purpose of general comparisons, it is estimated that year-around air conditioning, with exact temperature-humidity maintenance controls, will cost approximately \$4 per square foot for the average printing shop. On the same basis, air conditioning installed primarily for human comfort will average approximately \$2 per square foot of floor space.

It is important to remember, of course, that the shop which installs the packaged type of air conditioning as a first step can, at a later date, add the necessary equipment and controls to provide closer temperature-humidity control when such additional investment is warranted.

SEVEN UNITS — NO DUCTS . . .

Continued from page 82

where it is needed, according to actual demand either for personnel or manufacturing reasons. In cases of seasonal employment, when all sections of the plant may not be occupied, some of the units need not be operated.

Another reason for selecting packaged units was that production changes often require rearrangement of equipment, and the free-standing conditioners can be shifted from one spot to another with only nominal changes in exposed piping being necessary.

Only the air in the breathing zone is conditioned, the air above this space being allowed to rise at will. Location of the equipment permits easy inspection and examination, these comprising principally cleaning of filters and oiling of fan bearings. As presently constituted, the installation allows for expansion without hampering either unit or plant operation, or requiring any extensive alteration to the existing facility.

While it is not possible as yet

to evaluate the air conditioning system in terms of dollars and cents, president H. L. Grubman asserts that already the equipment has contributed substantially to improved employee relations, has been an important factor in keeping skilled operators and has increased efficiency and reduced material spoilage. Factory air conditioning, Grubman believes, will be an important future contributor to manufacturing facilities, techniques and quality of material produced.

RECOLD STARTS USING PREPAID FREIGHT

Refrigeration Engineering, Inc., has announced a full freight prepaid policy on all "Recold" ceiling blower coils. The announcement, made by Hy Jarvis, president, is "in line with a broadened sales program."

The new Recold price list on ceiling blower coils shows delivered prices to the nearest freight station in the U. S. The prepaid freight program does not apply to repair or replacement items.

Now you can offer
**100% fail-safe
protection**
for all automatic defrosting
with
PARAGON



"de-frost-it" with
remote control

Here's refrigeration protection at its best — with a nice profit for you! Saves customers worry about costly food spoilage . . . ends guessing and call-backs for re-setting.

Key to 100% fail-safe defrosting of any low temperature or normal temperature system is the built-in 45-minute termination dial. If the pressure switch is not actuated for some reason,



a pin on the dial automatically terminates the defrost cycle. Action is positive, sure! Guards against low ambient, gas shortage or inoperative condenser. Protects against failure of pressure/temperature cut-in switch or improper defrosting. Install a TPT "de-frost-it" on your next job. Order from your Refrigeration Equipment Wholesaler or write Dept. 1688 for Bulletin.

**AUTOMATICALLY
COMPENSATES DEFROST
TO LOAD AND ATMOSPHERIC
CONDITIONS**

Once set, length of defrost period is 100% self-adjusting. Seasonal weather changes have no effect. Two models available: TPT 303 (hot gas) and TPT 305 (electric heat). Both units are remotely controlled by pressure switch or thermostat. Set for 1 to 8 defrost cycles per day.

**One more
Paragon profit
opportunity!**

PARAGON ELECTRIC COMPANY

TWO RIVERS, WISCONSIN

WORLD'S FOREMOST MANUFACTURER OF TIME CONTROLS

CONTRACTORS

NEWS • ACTIVITIES • PLANS

16-Point Sales, Ad Standards Program Proposed for Room Air Conditioners

A suggested 16-point program of standards for advertising and selling room air-conditioners has been announced by the Air-Conditioning and Refrigeration Institute and the National Better Business Bureau.

The new program developed from more than a year of discussions between the two sponsoring organizations in the course of which nearly all manufacturers of room air conditioners and local Better Business Bureaus throughout the country were consulted. In announcing the availability of the recommended standards, ARI managing director George S. Jones, Jr., and NBBB executive vice president Allan E. Backman made the following joint statement:

To Encourage Dependability

"The intent of these standards is to encourage and preserve dependability in advertising and selling room air conditioners. It is also hoped that these standards will have a stabilizing influence on the advertising and selling practices at the local level, where they may be supplemented to meet local requirements. These standards should help build consumer confidence in the room air conditioner industry, thereby helping to protect the investment of dealers, distributors, and manufacturers in the productivity of room air conditioner advertising."

A major objective of the standards is the elimination of public confusion about the cooling capacity of room air conditioners by providing a single accurate, authoritative method of expressing such claims on a basis which can be readily verified. This will be

accomplished by making the claims in terms of the Btu-per-hour capacity of the model as determined by a standard established by the Air-Conditioning and Refrigeration Institute.

This provision will apply to advertising or sales literature for all 1956 models, or later. In the meantime, any statement of cooling capacity expressed in terms of the Btu-per-hour capacity of a unit shall be according to its rating based on the ARI standard.

Room Unit is Defined

The recommended standards define a room air conditioner as including "a prime source of refrigeration and dehumidification and means for circulating and cleaning air" although it may also include means for ventilating, heating, or performing other functions. Air

coolers, air purifiers, air humidifiers and dehumidifiers, and air circulators, such as fans and blowers, as well as any other device not performing the four minimum functions of an air conditioner, shall be described for what they are and shall not be described as air conditioners according to the standards.

Recognizing the wide variation in construction, insulation, temperature, and other controlling factors, the standards provide that advertising claims as to area cooling capacity shall be appropriately qualified to avoid deception of the public.

Standards on Advertising

Other standards require adequate disclosures in the advertising of discontinued models or of units which are used, rebuilt, reconditioned, etc. Misleading use of illustrations or layouts is prohibited. Guarantee statements must be accurate and disclose material conditions or limitations, if any. The standards provide that no advertisement of a room air conditioner shall state or imply that the unit can be installed without alterations in present electrical circuits or wiring, or without additional expense for electrical installation, when such is not the fact.

The standards also provide that deceptive trade-in allowances, fic-

Continued on page 107

Here are Some Causes of Excessive Noise in Residential Air Conditioning Systems

SOME of the problems that an air conditioning dealer is apt to encounter in installing year 'round residential equipment, aside from the equipment itself, are pointed up in a special report issued recently by the National Association of Home Builders Research Institute in connection with the experience of homeowners in the Austin (Tex.) Research Village.

The user complaints listed here all have to do with excessive noise made by the installation. In some instances the noise was due to defective equipment; in others it was the installation. A study of

them should help the dealer to avoid or correct such mistakes in his own residential air conditioning jobs.

Complaint No. 1: Wood platforms, acting as return air chambers, prove to be sounding boards for compressor and fan noises. Rubber or felt deadeners between the equipment and the box reduce the noise, but do not eliminate it.

Complaint No. 2: Plywood walls of a utility closet touching the equipment also act as sounding boards. Clearance between equipment and wall, with a layer of sound deadening material, is

Continued on page 107

"WEATHERING EQUIPMENT"



TESTING of building materials at the Johns-Manville Research Center, in New Jersey, requires the use of this water chilling equipment manufactured by Heat-X, Inc. The materials are exposed to a 21-hour weathering cycle in which they are sprayed by refrigerated de-ionized water, and exposed to ultra-violet rays from carbon arcs. A 2-hp condensing unit is used for the chiller.

O.K. SURCHARGE TO FORCE WATER SAVING

Authority to add an annual surcharge rate to water bills for any water-cooled air conditioning equipment that is not equipped with water-conserving devices has been granted the St. Louis (Mo.) County Water Co.

The Missouri Public Service Commission granted the need for such a charge to enforce water conservation, but delayed the effective date until May 1, 1957.

The surcharge will be an annual \$40 per ton of rated capacity.

The water company asked for the surcharge after being confronted last summer with several periods of sharply increased water consumption. Part of this was attributed to increased use of air conditioning equipment.

Water requirements in the county for 1955 were estimated by the company at 105 million gallons of water a day, of which 23.5% would be required for non-conserving air conditioning units. Requirements for 1958 were forecast at 210 million gallons a day, of which 52.2% would be required for such units.

It was suggested such a trend would result in higher rates for all classes of water users, unless special rates were set up.

Evidence in hearings placed the number of non-conserving units in

St. Louis County at 900 in 1953, using 8½% of the total water demanded by 102,000 customers in hot weather.

NEW LAW DEMANDS COOLING WATER SAVERS

An ordinance passed recently by the City Council of Webster Groves, Mo. requires that water-cooled air conditioning units of 1-ton capacity or higher must be equipped with water-saving devices.

Owners of systems which can be provided with water savers without structural or mechanical changes must comply with the new law by July 15, according to H. C. McClintock, city manager. Others have until Aug. 15 to comply.

New systems must be approved by the city building commissioner.

The ordinance establishes a use limit of 10 gallons of water per hour for each ton of refrigeration. Violators can be fined \$50 for each day of illegal operation.



Now! GASKET SELECTION MADE EASY...

GASKETS FOR REFRIGERATOR AND FREEZER DOORS

QUESTION: Does the "Curvall" Rubber Gasket have to look exactly like the gasket I replace to do the job right?

ANSWER: No. The only important factors are the gasket height and width. The height of the cushion — the most important consideration — must be the same as the original gasket. The gasket width should be sufficient to cover the panel screws.

EXAMPLE:

	CURVALL	GASKET A	GASKET B	GASKET C
CUSHION HEIGHT				

Jarrow's "Curvall" Series 1400 rubber gaskets are money-makers for servicemen because they:

1. eliminate notching on rounded corners of the late model units, sharply reducing installation time and effort.
2. give a "fresh-from-the-factory" appearance, eliminating need for the expensive pre-formed frame gaskets formerly used.
3. are guaranteed to give the fine quality service expected of a Jarrow product.

Start making money with "Curvall" now. Ask your wholesaler for full information.

11 "Curvall" Sizes
— all 14 ft. lengths

service tip:

"Curvall's" 11 sizes (14 ft. lengths each) fit practically every late model door. Keep all 11 in your car and you'll make more per service call through time saved in having the correct gasket on hand.



JARROW PRODUCTS INC.

420 NORTH LA SALLE STREET • CHICAGO 10, ILL.

LICENSING ORDINANCE PROPOSED IN LANSING

An ordinance introduced recently in the Lansing, Mich., local governing body would license and regulate installation of heating, ventilating, air conditioning, exhaust and refrigeration devices.

Sponsored by Alderman George R. Sidwell, the proposal would set up a code governing the installation and location of devices and provide specifications for units.

Companies would be licensed and required to post a \$2,500 per-

formance bond with the city clerk as a guarantee that work was properly done. Inspections would be made by city officers to see that installations and materials met with the code requirements.

Under terms of the proposed ordinance, a seven-man board would be created, with the building inspector, fire chief and representatives of air conditioning, heating, refrigeration companies named to the board. They would establish rules and regulations and govern application of the ordi-

nance in a way similar to the City Board of Electrical Examiners and City Plumbing Board.

COMPLETELY NEW

"Pebbletone" BEVERAGE COOLERS by * KOLD-DRAFT

NEWLY DESIGNED
COMPLETELY MODERN
A NEW HIGH IN EFFICIENCY



* Trademark
Reg. U.S. Pat. Off.
Copyright, 1954
Uniflow Mfg. Co.

Shown:
MODEL PT-27

FEATURING:

- 1—A new low price
- 2—Beautiful and efficient SLOPING FRONT DESIGN
- 3—Truly a SPACE MISER—extremely large capacity in a small space
- 4—New "easy pickup" method of longitudinal NECK-TO-NECK bottle stacking
- 5—Models available—13 - 27 - 40 - 54 case capacity, remote or self contained

FAR IN ADVANCE
OF COMPETITION

Write Today For Literature
And Prices

A product of the

UNIFLOW MANUFACTURING CO.

EAST LAKE ROAD, ERIE, PA.



BUILDING YOUR BEST VALUE IN BEVERAGE COOLERS SINCE 1932
Circle No. 77 on Reader Service Card

"MECHANICAL" IS NEW IN ASSN.'S NAME

Approval of a new name, Mechanical Contractors Association of America, was voted by members of the Heating, Piping & Air Conditioning Contractors National Association at their recent convention in Houston, Tex.

The convention passed a resolution in support of a message to U. S. Sen. Kilgore, urging that the Federal government recognize mechanical contractors as specialists in heating, piping, air conditioning and ventilation.

This would require an amendment to Senate Bill 1644 now before that body's judiciary committee. The bill would require general contractors in Federal contracts



to name each sub-contractor in their bids.

Members of the association indicated they prefer a stronger law, listing each subcontractor's bid, to prevent bid peddling, by which a general contractor in a Federal project could reduce his original subcontracting bids and increase his profit by calling in other subcontractors to do work cheaper.

Elected president of the association was Edward Jungbert of Louisville, Ky. George Hall of Hall & Co., Madison, Wis., was elected vice president, and Joseph Spitzley, of R. L. Spitzley Heating Co., Detroit, was elected treasurer.

NOISE IN HOME UNITS . . .

Continued from page 104

required to solve the problem. Drywall produces no "sounding board" effects.

Complaint No. 3: Excessive vibration noise is produced by units installed in completely enclosed closets containing no sound deadening. It is better to locate units in part of a utility area.

Complaint No. 4: Return air grilles connected directly to the equipment, or connected by metal ducts, produce loud fan noise in the area near the register. Sound deadened two-bend baffles or canvas sleeve connections help.

Complaint No. 5: Liquid and suction lines attached to the frame of the equipment and improperly anchored elsewhere, were exceedingly noisy.

Complaint No. 6: Duct and register noise from vibration was frequently objectionable. Insulation inside the plenum, and flexible connections between the equipment and plenum, reduce the noise to acceptable limits.

The so-called "split system", where the condensing unit is placed outside the living area, was found to be satisfactorily silent to the home owner. However, in some cases it created a noise problem for neighbors who might leave windows open.

ROOM UNIT STANDARDS . . .

Continued from page 104

titious list prices, false and exaggerated comparative prices or savings claims, misleading "free" offers, unfounded superlatives, misleading "rental" offers, "bait" advertising, general underselling claims and unfair disparagement of competition shall not be employed.

The recommended standards are intended to apply equally to advertisements in newspapers, magazines, radio broadcasting, telecasting, direct mail, window displays, counter cards, and advertising promotion in any form used or prepared for use of others by national advertisers and national or regional distributors of room air conditioners.

N. CAROLINA ESTABLISHES STATE EXAMINERS BOARD

A bill to establish a state board of refrigeration examiners was written into law May 5 by the North Carolina senate, following third reading.

The new legislative act establishes a seven-member board of examiners. The board will examine and license refrigeration contractors in towns and cities with more than 10,000 population. The act takes effect on Jan. 1, 1956.

The examining board will be

dominated by the industry. It will be made up of four representatives of the industry plus one member from the state board of health, one from the division of public health of the Greater university, and one from the engineering school of the Greater university.

L. L. Carter, president of the Refrigeration Trade Association of America, and H. W. Welker, president of the Air Conditioning & Refrigeration Wholesalers, together with other prominent refrigeration industry representatives, were



NEW

Marsh Testing Set

... with temperature scales for Freon-12 and Freon-22

The finest of testing instruments have been made still better. Pictured above are the new models of Marsh pressure and compound testing gauges . . . with two scales in color showing corresponding temperatures of Freon-12 and 22 . . . with greater pressure ranges in both gauges.

In the Compound gauge, the important retard scale has been increased to read from 0 to 80 lbs., and maximum reading is increased to 250 lbs. The range of the pressure gauge has also been increased . . . to 400 lbs.

Their precision bronze-bushed movements give them the remarkable accuracy of 1% of reading. Like their distinguished predecessors, they have the handsome, highly-polished brass cases with sparkling beveled-glass crystals. Threaded rings make it easy to remove the crystal, giving instant access to the Marsh "Recalibrator"—quickest and best way to maintain the high degree of accuracy vital to testing. Gauges are standard with $\frac{1}{8}$ " N.P.T. male bottom connection with restriction screw in connection. Dial size, $2\frac{1}{2}$ ".

No servicing kit is complete without this testing set. Write for details or **SEE YOUR JOBBER**

MARSH INSTRUMENT CO., Sales Affiliate of Jas. F. Marsh Corporation
Dept. P, Skokie, Ill. • Marsh Instrument & Valve Co. (Canada) Ltd., 6407
103rd Street, Edmonton Alberta • Export Dept., 3501 Howard Street, Skokie, Ill.

MARSH Refrigeration Instruments

GAUGES • WATER REGULATING VALVES • SOLENOID VALVES • HEATING SPECIALTIES

Circle No. 78 on Reader Service Card

instrumental in obtaining support of the measure.

The Legislative Committee of the RTA of North Carolina was under the chairmanship of N. F. Crater, Winston-Salem contractor. This committee engaged the law firm of Broughton & Broughton, Raleigh, which worked closely with C. B. Collins, general counsel of RTA of America, and with the responsible committee of the North Carolina Legislature.

Senator Hightower of Anson, voicing opposition to the measure, called it "monopolistic" and said it would "tend to build a fence around the refrigeration contractors and give them a subterfuge by which they can raise the price to John Smith."

Hightower read to the senate the North Carolina supreme court decision of several years ago which declared a similar board for photographers to be unconstitutional "in order that you will know how the supreme court of North Carolina will look on this (refrigeration) act."

On the other hand, proponents

argued that the refrigeration men were caught between the electrical trade on one hand and the plumb-

NUMEROUS revisions and additions are included in the 1955 edition of "Heating Ventilating Air Conditioning Guide", published by American Society of Heating and Air Conditioning Engineers, and now available at the organization's offices, 62 Worth St., New York 13, N.Y.

Technical section of the book runs to 1160 pages, and the equipment section includes data concerning the products of 328 manufacturers.

Revisions and expansions include changes in codes and standards, new methods in product design, and improved engineering practices.

There are also a new chapter on schoolhouse heating and ventilating, new information on heating systems using high temperature hot water, and reorganized design information on thermal conductivities and conductances for pipe insulation and building materials.

The book, cloth-bound, is priced at \$12 a copy.

ing trade on the other, each with its licensing board.

Having a board of their own, said Senator Calvin Graves of For-

syth, "would permit the refrigeration contractors to do the incidental work of plumbing and wiring accompanying the installation of refrigeration systems."

Senator Graves described the refrigeration business as "a highly skilled work" and said most of the objectionable features of the bill had been removed before it left the House. Other amendments added by his committee, said Graves, exempted air conditioning and brought under the "grandfather clause" those refrigeration contractors operating in towns under 10,000 population.

VALVE FIRM OPENS ATLANTA WAREHOUSE

New warehouse facilities have been established in Atlanta, Ga., by Superior Valve & Fittings Co., to carry a complete line of valves, fittings, and related supplies for the convenience of wholesalers in the southern states.

The warehouse is a part of the headquarters of Austin L. Brown Co., 732 Spring St., NW.

INCREASE SALES

AMERICA'S MOST COMPLETE
AND FINEST LINE

of COOLERS

BEVCO

they GIVE
PERFORMANCE *PLUS*
YEAR AFTER YEAR!

Here's DRY refrigeration at its best. Here's trouble-free performance that tells—and sells! The BEVCO 5-year warranty guarantees superior service. Accessories that are sales makers — water equipment, dividers, casters, stainless interiors, exteriors available on all models.

RESULTS COUNT!

The BEVCO Company, Inc.
3314-28 E. BROADWAY • ST. LOUIS 16, MO.

WRITE FOR
CATALOG C1

COMPARE THESE Pinnacle Wall Type Beverage Case FEATURES with any competing unit, and you'll see WHY Pinnacle SELLS EASILY — AND STAYS SOLD!

*Quality Constructed Throughout! Exterior—18-gauge white life-time porcelain ends. Back, top and bottom—20-gauge galvanized iron. Interior—top and bottom, 18-gauge white porcelain. Frame—No. 1 kiln dried Douglas Fir, screwed throughout. Insulation—3 1/2" Fibre-glas. Exterior wrapped with vapor proof paper. Shelves—Heavy wire, plated to resist corrosion. Adjustable on 1/2" centers. Lighting—U.L. approved lights, automatic door switches. Cooling System—Ceiling hung forced air evaporators.

*Economical Trouble-free Service!

*Available in 4, 8 and 10 foot models in either Porcelain or Stainless Steel. 8 and 10 foot models have 8 sliding doors.

A few Pinnacle Territory Franchises are still available. Wire or write today for full information and illustrated literature!

Pinnacle

EQUIPMENT CORPORATION
FLEETWOOD, PENNSYLVANIA
EXPORT DEPT.—39 Broadway, New York

Circle No. 79 on Reader Service Card

Circle No. 80 on Reader Service Card

ADVERTISING BUDGET . . .

Continued from page 81

heating dealers. If your sales picture is different, proportion your advertising expenditures accordingly. Notice that merchandising expenditures are broken down to be spent in proportion to sales a month in advance.

This means, for example, that 23% of the merchandising budget should be spent during the first quarter. In Dealer "X's" case, this would be 23% of \$12,700, or approximately \$2920. For the second quarter (April-May-June) the merchandising expenditure would be 34% of \$12,700, or approximately \$4320.

The budget for the third quarter, figured on the basis of the percentages above, would be 27% of the year's merchandising expenditure (\$12,700) or approximately \$3430; and expenditures for the final quarter would be 16%, or approximately \$2030.

Integrate the Program

Having determined in the case of Dealer "X" how the annual merchandising budget will be allocated, the next step is to set up details of the overall promotional program—to tie-in all the elements of the program by means of an annual sales-and-merchandising calendar.

For best results on your local program, key your activity to your manufacturer's national advertising and sales promotion schedule. In this way your local efforts will gain impetus from the manufacturer's national activity.

Review All Factors

In setting up the details to your annual calendar:

1. Review the items available from the manufacturer that will help you in your merchandising activities for the year. Order what you'll need—early.

2. Review the manufacturer's co-op policies in matters of advertising and sales promotion. Decide how you can best benefit from them.

3. Review scheduled national promotions the manufacturer is planning, and the suggested or-

ganization methods outlined to make them most effective.

4. Then get all the elements of your organization into shape for an integrated, pre-planned merchandising effort that will really pay off.

Here are some of the things to examine in your schedule:

First, your store itself. "Dressing up" your store is a vital part of your merchandising program.

Outside identification: Do you have a suitable door sign? Your manufacturer can supply (at moderate cost) one that identifies you as headquarters for his products in your vicinity.

Your windows: Are they clean? Do you have decals identifying the manufacturers you represent?

Your show room: How about display banners and charts? Choose wisely in making an at-



tractive display unit. Make it representative of the line you sell. Display banners and charts on your walls can tell the rest of the product story.

Your literature: What's the status of your literature for handouts, presentations and product proposals? You needn't overstock—but see that you have enough of the pieces you'll be needing. When you hand out literature, be sure you're giving out what is needed—don't confuse the prospect by giving him too much literature, or the wrong kind. Remember, a prospect for residential air conditioning may need an informative, non-technical piece, or one outlining the background and reliability of your manufacturer. The technically-inclined prospect (an engi-

neer or architect, for instance) will want a piece giving specifications details and operating data.

Don't give out specifications sheets as literature pieces. Specifications sheets are for specific product proposals. The manufacturer has them for all products in the line. Have a variety of them on hand, and see that the ones you include with your product proposals fit the units you're selling.

Use All Selling Tools

The wealth of merchandisers available from your manufacturer are for specific purposes. Order your supply, and instruct your personnel in how to use them.

Presentation tools for your salesmen: Be sure to "arm" your salesmen with visual selling aids and presentation material for the individual interview. Literature pieces are to be left with the prospect after the presentation is made. The prospectus to be used during the presentation should be material specifically designed for the presentation. In giving the written proposal, the salesman should include the appropriate merchandiser and specifications sheet.

Train Salesmen Well

Training: Product, sales, service and application training are a vital part of your program. Set up weekly meetings for your sales and/or application personnel and your service personnel. Arrange for a schedule of topics to be discussed. See that they are well coached on all information available on your own line of products, application and estimating data, installation and service information, competitive product information, etc. Some, or all, of this information is available from your manufacturer.

Manufacturer promotions: Familiarize yourself with the manufacturer's national promotions. Decide which ones you will tie-in with, and plan in advance with your sales organization how you'll go about it.

Now . . . after you've made your examinations, assign to members of your organization the job of carrying out different parts of the overall merchandising plan. Follow up, by means of the check-chart accompanying this article,

to make sure that all the angles of your program are being covered.

With all of these "incidentals" in hand, you're now ready to begin mapping out your advertising and promotional program for the year.

In next month's issue, we will work out an integrated advertising schedule for a typical quarterly period covering local newspaper, direct mail, radio, etc., and suggest other possible promotional tie-ins you can take advantage of in your community.

FACTORY CONDITIONING . .

Continued from page 86

Water, including pumping costs and maintenance of the piping system, is a costly item in many plants. We know that cooling towers, evaporative condensers and air cooled condensers repay their investment in a short time. Plant engineers, superintendents and managers are alert to conservation equipment of all kinds. Spraying condenser discharge water over a

hot roof may handle a sizable portion of the load.

The person in charge of plant operations—be he called engineer, superintendent, master mechanic or any other title—should know his plant better than anyone else. He has troubles enough without adding those of a troublesome air conditioning system. He probably has skilled maintenance mechanics who should be carefully taught just which service operations are their responsibility, how to perform them, and when to call for outside help.

Factory air conditioning, once installed, is there to stay. Many factory managers consider it their most important production tool. The building of many new plants with complete air conditioning as a basic necessity is one of the important technological achievements of this decade.

MITCHELL SETS TRADE-IN PLAN FOR ROOM UNITS

A trade-in plan for room air conditioners that will make reconditioned $\frac{3}{4}$ hp units available on the market for as little as \$99 has been announced by E. A. Tracey, general manager of Mitchell Mfg. Co., Chicago.

The plan authorizes Mitchell dealers to offer as much as \$125 for old units taken in trade for 1955 Mitchell $\frac{3}{4}$ or 1 hp room air conditioners.

Units taken in trade may be reconditioned by the dealer or sent to local authorized factory service depots for steam cleaning and reconditioning.

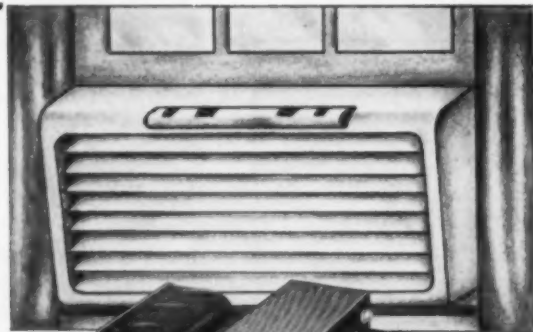
Tracey said consumer surveys show reconditioned air conditioners will find a good market if priced at around \$100.00.

NAMED REPRESENTATIVE

Allied Refrigeration Suppliers, Inc., with offices in San Diego and El Centro, Calif., has been appointed representative for refrigeration and air conditioning equipment of Drayer-Hanson, Inc., with territory in San Diego and Imperial counties, also Yuma, Ariz., and portions of Lower California.

Acme Electric

BOOST and BUCK TRANSFORMERS



... CORRECT 208 VOLT INSTALLATIONS

Often in commercial and industrial installations the electrical source is a 3 phase power line. By tapping two legs of the supply, the single phase service obtained is 208 volts. With a compressor motor designed for 230 volts, the voltage available will not bring the motor up to speed and will result in poor performance of the air conditioning, refrigeration or other equipment and eventually burn out the motor starting windings.

Acme Electric Boost and Buck transformers are designed with secondary windings that can be used as a booster to provide proper voltage to the electric motor wherever low voltage conditions exist. They are intended for use on single phase circuits that have been tapped from a 240 volt, 3 phase power supply.

With an Acme Electric Boost and Buck transformer, the 208 volt input circuit is connected in series with the secondary circuit, boosting voltage 12 to 24 volts or providing 220 to 232 volts as desired to match the motor requirements.

Acme Electric Boost and Buck transformers are designed for cool operation under continuous service. High quality materials and heavy duty design assure trouble-free performance.

Write for catalog 88-199

ACME ELECTRIC CORPORATION

827 WATER ST.

CUBA, NEW YORK

West Coast Engineering Laboratories: 1275 West Jefferson Blvd., Los Angeles, Calif.

In Canada: Acme Electric Corp. Ltd., 50 Northline Road, Toronto, Ont.

Acme Electric

TRANSFORMERS

Circle No. 81 on Reader Service Card

**Goes Further....
Seals Better....**



For your convenience:
available in handy
1-lb. brush top cans.

"John Crane" *Plastic Lead Seal is the most economical all-purpose sealing compound for pipe joints, studs and gaskets—because you use less to get a better seal. PLS seals for the life of the connection, yet never hardens, allowing joints to be easily broken after years of service.

PLS prevents galling . . . is insoluble in water, gas, steam, many chemicals and all petroleum products. Use it for all services . . . low or high pressure applications up to 6000 psi. . . . temperatures to 500°F. Carries the Underwriters' seal of approval.

Prove to yourself that it takes less PLS to give a perfect seal. Send for a generous free sample. Crane Packing Company, 1843 Belle Plaine Ave., Chicago 13, Ill.

CRANE PACKING COMPANY

In Canada: Crane Packing Co., Ltd.,
617 Parkdale Ave., N., Hamilton, Ont.

NEW KOOL' KLOSET

**GIVES EXTRA REFRIGERATION
SPACE AT LOW,
LOW PRICE!!**



Again, La Crosse engineering sweeps the field with this low cost answer to the demand for extra refrigeration space. The KOOL' KLOSET walk-in, reach-in cabinet is ideal for all 'round storage of countless items.

KOOL' KLOSET FEATURES:

The new La Crosse self-contained refrigeration system, grey baked enamel exterior, 3" spun glass insulation, rugged hardware with inside release, sizes 34" wide and 62" wide.



WRITE TODAY for complete information

LA CROSSE COOLER CO.

3002 LOSEY BLVD.

LA CROSSE, WIS.

Export Office: 80 Broad St., New York — Cable: EXIMPORT

Circle No. 42 on Reader Service Card

& AIR CONDITIONING • JULY, 1955

Automatic Defrost

with

sta-kold

vimco

sno-queen



NO ICE SCRAPING!

all-metal Freezers

HERE ARE REAL SELLING FEATURES

- FAMOUS KRAMER THERMOBANK AUTOMATIC HOT GAS DEFROSTING SYSTEM ASSURES TROUBLE-FREE PERFORMANCE . . . HERE'S HOW:

When the freezer requires defrosting action, the compressor and the Kramer hot gas defrosting system forces hot gas through the coils, thus preventing the formation of undesirable ice deposits.

- Eliminates ice build-up — Lowers operating costs
- Interiors can be changed or rearranged in minutes — no tools needed
- Gives maximum food protection at all times

Profit from the heavy duty, long lasting freezers that have more exclusive features per dollar than any other make. 48 new models for every customer need including bakers freezers. Stainless steel, aluminum or baked white enamel. Available from 15 cu. ft. single doors to 90 cu. ft. four door models. Remote or self-contained.

WRITE, PHONE OR WIRE FOR REPRESENTATIVE OR INFORMATION

sold only through selected dealers

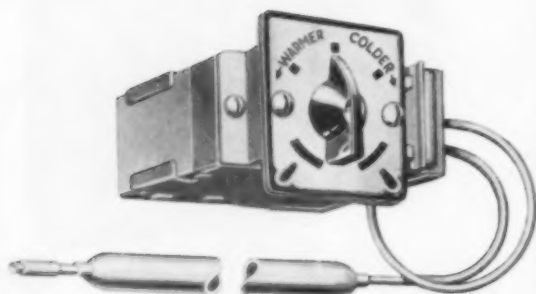
VICTORY

METAL MANUFACTURING CORPORATION
STAINLESS STEEL SPECIALISTS • PLYMOUTH MEETING, PA.

DIRECT FACTORY REPRESENTATIVES IN ALL PRINCIPAL CITIES

Circle No. 40 on Reader Service Card

**There's a
simpler way...**



**Get this guide to nearly
5,000 Ranco Controls...**

Ranco Replacement Reference No. 1544 lists almost 5,000 controls... largest line in the industry.

Helps you select the right control for every job. Buy yours from your Ranco wholesaler now.



**World's Largest
Manufacturer of
Refrigeration Controls**

Ranco Controls

**to reverse air conditioners
from hot to cold**

You don't need a battery of controls to coax warm air out of an air conditioner. There's a single two-in-one Ranco Control for the job.

Installation of a Ranco Control on air conditioners equipped for heating or cooling trims service time, cuts down on callbacks and hikes your profit figure accordingly. Get the *right* control the first time. See your Ranco wholesaler. Install Ranco... to be sure.



Ranco Inc.

COLUMBUS 1, OHIO

Circle No. 83 on Reader Service Card

JULY, 1955 • COMMERCIAL REFRIGERATION

THE SERVICE MAN'S DEPARTMENT

HERE'S HOW!

Tips on Trapping Ammonia Systems

One of the more serious problems on ammonia systems is the removal of pipe scale, core sand, and other abrasives that cause excessive wear on compressor parts and controls.

Pitting or wire drawing of pin and seats in float valves, solenoid valves, and thermostatic expansion valves is one of the serious consequences resulting from the fail-

ure to remove foreign matter from the ammonia system. In many instances, these particles are so minute that it is extremely difficult for an ordinary strainer, using 60, 80, or even 100-mesh screen, to successfully remove them.

One solution to this troublesome problem is the use of filter-driers of replaceable core type, having more effective filtering capacity than the standard strainer screens mentioned above, as scale traps on ammonia systems to filter out the small particles of scale and foreign matter that may cause serious damage to the system. For instance, Sporlan Valve Co. reports that its "Catch-All" units in various sizes have been effectively employed for this purpose.



WANT TO EARN \$5?

Then dream up some good idea for saving yourself time, money, or aggravation on a service call, and tell us all about it. Just jot it down on the nearest scratch pad, together with a sketch if you think that would help, and send it to Here's How Editor, Commercial Refrigeration and Air Conditioning. If the Editor agrees that your idea is worthwhile, he'll make your dream come true by publishing it in the magazine and promptly sending you a check for \$5. Why not start reaching for that pencil right now?

I DO IT THIS WAY

ON more than one occasion I have started to make a final leak check before leaving a job, got out my Halide leak detector, and then been unable to locate the reactor plate.

This happened to me recently, and being some distance from the shop and my wholesaler's I improvised as follows:

I pierced the center of a copper one-cent piece (it's legal) with a ten-penny nail, fluxed the steel bracket that formerly held the original plate, and using Phos-Copper I placed the penny upon the bracket and quickly brazed them together, pointed side of penny up.

As to drilling hole, I believe you will find the flame has more copper surface with which to contact due to conical shape made by nail. Phos-Copper, due to higher melting point, works very well and the added flux makes for better bond of the dissimilar metals.

I have used this improvised device repeatedly. It is quite sensitive, and if the proper flame is maintained it will last indefinitely.

John E. Gilmore
Nashville, Tenn.

Belt Tension Alignment Affect Operating Life

Most belt and bearing failures in heating and air conditioning blowers are caused by improper belt tension and misalignment of the pulleys, according to J. B. Burrowes, chief engineer of Lau Blower Co. Burrowes points out that when properly installed a belt will allow deflection of about 1" when grasped with the hand so that the two sections of belt are pulled toward each other.

"In many cases the manufacturer will deliberately tighten the belt excessively to hold the motor in position during shipment," the chief engineer reports. "In all cases, it is strongly recommended that the tension be checked before putting the blower into operation."

On the subject of pulley alignment, Burrowes cautions that a close check should be made by us-

ing a try-square to make sure the pulleys are accurately lined up.

"If the belt tension is too loose," he explains, "belt slippage may occur and excessive belt wear can result. Too much tension will draw the pulleys towards each other, subsequently pulling the shafts through the oil film against their bearings and allowing metal-to-metal contact. This will not only decrease the bearing life, but will contribute to noisy blower operation and exaggerate any defects in belt or pulley.

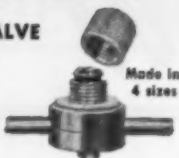
"Excessive misalignment produces increased belt wear and can produce lateral motion of the wheel



NEW REVOLUTIONARY PIERCING VALVE

LINE-TAP VALVE

Small, compact hermetic valve that is easily installed on the lines of systems, piercing the tube without discharging refrigerant, to provide a port for charging, discharging or testing. Conforms to tube, eliminating top heavy assembly... will not loosen or develop leaks due to vibration... will not bend or crimp tubing. Use with Watco Control Valve, Part No. CV-1.
Part No. LT-4 for 1/4" Tubing
Part No. LT-5 for 5/16" Tubing
Part No. LT-6 for 3/8" Tubing
Part No. LT-8 for 1/2" Tubing



Made in 4 sizes

LINE-PORT VALVE with T-S CONNECTION

U. S. Pat. Pend.

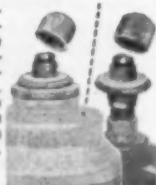


Provides a port for sealed units when it is desirable to cut the line that is to be tapped. No top heavy assembly to vibrate loose. The addition of the T-S Connection permits a huge variety of installations whereby one may be flared, the other soldered, or both ends either flared or soldered. Use with Watco Control Valve, Part No. CV-1.
Part No. LP-4 for 3/16" sweat; 1/4" sweat; 1/4" flare.
Part No. LP-6 for 1/4" sweat; 5/16" sweat; 3/8" sweat; 3/8" flare.

CAN-TAP VALVE

Screws on to Charge-A-Can refrigerant disposable containers. Valve stem needle pierces the can seal and operates as a regular valve allowing removal of refrigerant. Easily shut off and sealed. No large protruding parts when in closed position. Use with Watco Control Valve, Part No. CV-1.

Part No. CT-1



CONTROL VALVE



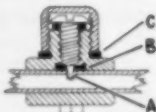
Designed expressly for use with LINE-TAP VALVE, LINE-PORT VALVE and CAN-TAP VALVE. Plated tool key with a screw arrangement that easily opens or closes these valves. Quick coupled - installed without wrenches. To operate: screw Control Valve on to any of the three valves and turn to open; then close, unscrew Control Valve

and remove. Use over and over again, one tool for hundreds of jobs.

Part No. CV-1

3 POINT SEALING PREVENTS LEAKS

- Needle pierces line and seals.
- Taper of needle plus gasket forms second seal.
- Knurled brass cap plus gasket is positive third seal.



SEND FOR WATSCO'S NEW 1955 CATALOG



Circle No. 84 on Reader Service Card
114

and shaft, causing considerable noise."

In conclusion, Burrowes emphasizes that proper alignment of pulleys and correct belt tension will eliminate needless service calls and customer dissatisfaction. "A little care in the beginning will save time, money and effort later on," he declares.

"Call Backs" Help Build Customer Goodwill

One of the surest ways to build customer goodwill is to make periodic "call backs" on all repair jobs, just to make sure that the equipment serviced is still performing satisfactorily. This holds equally true for domestic and commercial service.

Most practical way of carrying out such a program is to plan such return visits either on the way to

BUY FROM YOUR REFRIGERATION WHOLESALER



Complete outfit, \$76.50

For Quicker Installations

PREST-O-LITE Oxy-Acetylene

Trade-Mark

Welding and Cutting Outfit

PORTABLE—Light and compact. Take it anywhere—use it anywhere.

MODERN—Exclusive new blowpipe welds, cuts, and brazes. Just change the tip. No attachments or "extras" to buy.

HANDY—Small and easy to use. Always ready.

VERSATILE—Welds sheet and light plate; cuts easily through heavy steel. Changes over simply and quickly.

Oxygen and acetylene readily available in cylinders sized to meet your exact needs.

Write today for free descriptive booklet and name of nearest distributor.

"Prest-O-Lite" is UCC's trade-mark.

LINDE AIR PRODUCTS COMPANY

A Division of Union Carbide and Carbon Corporation
30 East 42nd Street UCC New York 17, N. Y.

Circle No. 85 on Reader Service Card
JULY, 1955 • COMMERCIAL REFRIGERATION

I DO IT THIS WAY

WHEN confronted with a "runs too much" complaint on a refrigeration unit, I use a self-starting electric clock for testing purposes. I merely wire the clock into my control circuit, set the time with another clock, and check back in several hours (usually 24) to see how much time my clock has lost. This denotes the off cycle of the unit, and has proved a very effective means of checking this operating factor.

James R. McConnell
San Antonio, Tex.

or back from new service calls. If the serviceman already is in the neighborhood of a previous call, it takes but a few moments to stop in and inquire from the owner how his equipment is operating.

Many service firms have found that any time spent on such calls is well repaid, not only by the goodwill built up in the mind of the customer, but also in new business leads which the customer—intentionally or otherwise—may provide.

How To Use Power Saw On Copper Tubing

When cutting copper tubing with a power saw, it is important to observe certain basic precautions to assure a satisfactory job. For instance, be sure that the size, temper, tooth, speed, and tension of the blade are correct for the job at hand, and that the work is firmly supported. Also be sure to select the proper feed pressure and blade coolant or lubricant.

Always be sure to avoid putting a new blade in an old cut. Instead, reverse the piece on which you are working and then start a new cut.

If the cut has a faulty angle, either make another cut or square up the original cut with a file. After the cut is made, use a file or knife to remove the rough burr produced by cutting. Don't force the cut, or the tube will flatten,

HAPPY CUSTOMERS . . .

Continued from page 49

to shock the customer into the illusion of being overcharged. It also would give the dealer an unnecessary and potentially troublesome problem of collection.

The call-back technique used by the Denver company was adopted by Tim Pike, the head of the firm, in part because he had earlier come to a conclusion that the decalomania name-stickers which he attached to equipment were not an adequate assurance that a customer would refer to them when service was needed. The telephone call-backs, he reasoned, would greatly increase the chances of future business. And results of the program have proved his reasoning to be sound.

"When a customer is satisfied with work previously performed, it is much easier to convince him that further work is needed," says Pike. "But the greatest improvement in our relations with him

come from the fact that he has not been shocked by our total charge having been more than he originally thought would be necessary."

As operated by the Denver company, each memory card is discarded as soon as the second repair job that it recommends has been performed. This keeps the files from getting too cluttered, and is in line with Pike's theory that "after we have made two repairs to the same equipment, the chances are that it will not need any more for a long time to come."

"OVER-POWER" . . .

Continued from page 75

steam-blast heating, the lower deck, refrigerated air.

A consistent increase in the number of warm days in the Colorado Springs area was taken into consideration in designing the "over-powered" system. During June, July, August, and part of September, it will require near ca-

capacity of the air conditioning system to overcome the internal and external heat load, according to Alexander. "All telephone exchange buildings present difficult air conditioning problems," he pointed out, "which are being complicated still farther by the increase in automatic, electronic equipment. The only logical answer to the high heat load created is to provide capacity far beyond the expected peak."

MONTANA WHOLESALE IN LARGER QUARTERS

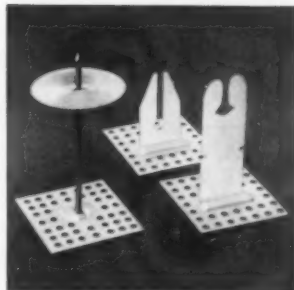
Refrigeration Supply Co., Billings, Mont., moved recently to larger quarters at 425 N. 31 St., in order to handle an expanding volume of business in heating and air conditioning equipment.

Better parking facilities for customers, and larger stocks of equipment are among the advantages of the new location.

The company includes Montana, Wyoming, and western Dakotas in its service area.

APPLY INSULATION—

QUICKLY
ECONOMICALLY
and EASILY with
STIC-KLIP



Stic-Klips permanently bind almost any insulating substance to masonry, wood, metal—flat, corrugated, curved, unusual-shaped. Eliminate drilling, puncturing metal. This modern method is used for heating, ventilating, air conditioning, processing equipment, cold storage, acoustical, marine installations.

Write for illustrated booklet on any of these applications

Stic-Klip® MANUFACTURING COMPANY, INC.
Box 83-A, Cambridge, Mass.

Circle No. 86 on Reader Service Card
& AIR CONDITIONING • JULY, 1955

NEED

heavy duty, large capacity water level controls? Maid-O'-Mist's No. 6900 series float control diaphragm valves are especially designed for air conditioning equipment, evaporative coolers, air washers, etc., and will accurately control water at any level. Water can be discharged upward or downward as specified.

WATER LINE FLOAT CONTROL VALVES



- ✓ CAPACITIES:
1½ gals. to
6 gals. per minute
- ✓ CAST BRASS BODY
- ✓ COPPER FLOAT
- ✓ NEOPRENE DIAPHRAGM
- ✓ INLET AND OUTLET
TAPPING
½" I.P.T.

BRASS
MOUNTING PLATE

Available for special
mountings

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any way you
look at it...



COMPLETE HOME AIR CONDITIONING UNITS!

- Greater profits at minimum investment
- Popular appeal and tested sales plan
- Labor-saving installation and trouble-free operation



AIR-COOLED or WATER-COOLED

Individual or combination
units for any home in any state



Priced below competition with a new financing plan! The industry's finest 1 1/2, 2, 3 and 5 ton units

EXCLUSIVE TERRITORIES STILL OPEN

Write, wire or phone today



SHANA MANUFACTURING, INC.

141 W. Randolph Street, Chicago 1, Illinois

Gentlemen:

I am interested in knowing more about SHANA-AIR HOME AIR CONDITIONING.

☐ DEALER ☐ DISTRIBUTOR ☐ MFG. REP.
Others please specify

Name _____

Firm _____

Address _____

City _____

Zone _____

State _____

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Survey Will Seek Consumer Attitudes on Air Conditioning

The first of a series of annual market research studies of consumer attitudes toward air conditioning will be undertaken this summer by the Du Pont Co. as an industry service.

Room air conditioners, production of which has grown from about 30,000 units in 1946 to an estimated 1.3 million units in 1954, valued at \$263 million, will be the focal point of the first survey. Results of the study will be made available to the industry next fall as a guide on which to base production, promotional and advertising programs for 1956.

Plans for the first survey, to be conducted by an independent research agency on a personal interview basis in urban centers, were announced at the annual meeting of Air-Conditioning and Refrigeration Institute last month in Hot Springs, Va., by Robert J. Thompson, director of sales of Du Pont's "Kinetic" Chemicals Div., which markets refrigerants.

"One of the most pressing problems in the industry today," Thompson said, "is the need for factual information on how people feel about air conditioning, why they buy it, what they like and dislike about it."

Answers to these questions will be the primary target of the survey which, it is hoped, also will develop factual information about the effect of air conditioning on owners' health and living habits.

Both owners and non-owners of cooling equipment will be questioned as to product features most appealing to them, price and service desires, types of retail outlets from whom they prefer to buy air conditioning equipment, price and service desires, and improvements they would like to see in existing equipment.

Details of the survey were outlined by D. C. McSorley, advertising manager of "Kinetic", and Joseph Hoopes, manager of the division's market research department.

Surveys to be conducted in future years, it was said, will be

devoted to such topics as central station residential air conditioning, commercial air conditioning, and industry sales practices.

Asserting that there is a great need for a project such as the one Du Pont is undertaking, ARI president James Emmett, Jr. said that the results should help each of the members of ARI to devise the most effective sales promotion and advertising program.

"This study comes at a time when our industry is at the thresh-

JAMES EMMETT IS NEW ARI PRESIDENT

JAMES EMMETT, JR., was elected president of Air-Conditioning and Refrigeration Institute during the group's annual meeting June 5-8 in Hot Springs, Va. Emmett is vice president of Jas. P. Marsh Corp.

Other officers elected at the meeting were: vice president, M. M. Lawler, vice president of Worthington Corp.; treasurer, Lud Emde, president of Temprite Products Corp.

Seven new ARI directors were elected at the meeting. They are:

C. E. Buchholzer, Airtemp Div., Chrysler Corp.; C. V. Gary, Henry Valve Co.; E. B. Maire, Penn Controls, Inc.; B. A. Mitchell, Mitchell Mfg. Co.; R. J. Powell, The Marley Co.; L. W. Smith, Frigidaire Div., General Motors; and Mr. Emde.

old of its greatest expansion," Emmett said. "The market for air conditioning has expanded tremendously in the past 10 years. If it continues to grow at a comparable rate during the next five years, we should experience a 46-times increase by the end of 1960.

"A study such as proposed by the Du Pont Co. can reveal certain consumer attitudes about which we lack sufficient information. If this is so, we may have to revamp our promotional approach so that we can bring about an even greater rate of growth for our industry."

FIRM NAME CHANGED

The American Thermometer Div. of Robertshaw-Fulton Controls Co. has been re-designated the American Controls Division. It is located in St. Louis, Mo.

BUY FROM YOUR
REFRIGERATION WHOLESALER

CAMOUFLAGE . . .

Continued from page 76

Despite all this striving for eye appeal in these buildings, however, a cooling tower was still a cooling tower, and continued to stick out like a sore thumb wherever it was erected.

The solution to this growing problem actually was so simple that the only wonder is that it wasn't started long before. Today, the architect who really cares, knowing that a cooling tower is going to be installed atop the building he is planning, simply designs a decorative masonry facade or enclosure to conceal or camouflage it.

Such enclosures, of course, need to be carefully planned with sufficient decorative grille or louver area to allow adequate circulation of air around the tower itself, but little ingenuity is required to design such enclosures—grille and all—in such a way that they blend with the style and treatment of the building itself, both

as to design and materials. In this way the cooling tower is made to appear as an integral part of the structure, not just a piece of mechanical equipment slapped on strictly as an afterthought.

Here is where the cooling contractor comes into the picture, for to achieve this end result successfully it is necessary for the contractor, the consulting engineer, and the architect to work together in close harmony. The contractor must pass on to the architect, usually through the consulting engineer, the exact position in which the tower will be located and the amount of air which it will have to handle. This makes it possible for the architect to plan the enclosure actually as an extension of the building itself, yet to design it in such a way that ample air circulation is provided.

Recognizing this growing trend, even some cooling tower manufacturers are now "getting into the act" by designing towers with lower silhouettes so as to blend better with the buildings on which they are installed, and by encasing them in materials which in them-

selves lend a decorative touch to the equipment.

Marley Co. has been a leader in this development, with its patented "Double-Flow" towers which have made it possible for contractors to handle virtually any cooling job a tower that projects no more than 12' above the roofline, and many jobs with towers which are only 8' high. In some of its newer models, this company has paneled the unlouvered sides of the units with corrugated asbestos cement board casing. The horizontal lines of this material not only conform generally to the basic trends of modern architecture but further serve to broaden and lower the tower silhouette.

SUPPLY FIRM CHOSEN

Debes Refrigeration Supply Co., Cleveland, Ohio, has been appointed to represent Servel, Inc., as a wholesale supplier of commercial electric condensing units and factory renewal parts. There are now more than 100 such outlets in the Servel system.

Handy Tube Bender

Smoothly Bends ANY
Pipe or Tubing



$\frac{3}{8}$ " to $1\frac{1}{8}$ " O.D.

• Just a twist of the wrist assures perfect, even bends . . . right-angle, any angle. U and offset—every time. Eliminate need for els. No more guesses—no kinks! Save enough time, labor and money on ONE job to pay for your Handy Bender.



See your supply house—or write for free folder today.

HOLSCLAW BROS., INC.

430 N. WILLOW ROAD — EVANSVILLE, IND.

Circle No. 90 on Reader Service Card
& AIR CONDITIONING • JULY, 1955

LARKIN

means low prices!



LARKIN CEILING HUMI-TEMP

Price is only one factor in the selection of any product—especially one that has so important a task as protecting valuable perishables. Performance must come first. Quality cannot be overlooked. Durability is highly important. Larkin has all of these. And Larkin has low prices, too. Compare them and see for yourself how low they are.

For the latest Larkin price list, see your wholesaler. If you wish, write direct to us. We shall be glad to send you one.

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Frost-Free Hot Gas Defroster • Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers • Disseminator Pans.

WATCHDOG OF THE NATION'S FOOD SUPPLY

LARKIN COILS

319 MEMORIAL DR., S.E. • ATLANTA, GA.

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BLOOD CLOTS ARE DANGEROUS
—SO IS WATER IN THE
REFRIGERANT.

FLO*



PREVENTS VALVE FREEZE-UP

Flo's "one-shot" handy tube contains the right amount of proved chemical dehydrant to protect systems charged with up to 2 lbs. of refrigerant.

Carry the convenient 36 tube carton in your service car at all times for immediate, on-the-job service.

*Flo is a carbones containing no dissolved solids, caustics or acids. Also available in the popular plastic dispenser-type bottles.

Sold by leading wholesalers
everywhere



Allin MANUFACTURING COMPANY

1353 West Grand Ave., Chicago 22, Ill.

Circle No. 88 on Reader Service Card

PROPER INSULATION . . .

Continued from page 79

tion job was completed, however, and before the installation of the air conditioning equipment, shop temperatures never ran more than 2 or 3 degrees higher than the outside temperature.

Following insulation of the roof in this manner, revised load calculations showed that the printing shop could be adequately cooled by the installation of two 10-ton package air conditioners, with a separate 7½-ton unit installed to handle the photographic area. This proposal made sense, both price-wise and space wise.

Salvage Value Considered

Because the building was leased, not owned, by the printing firm, all of these air conditioners were installed as free-standing units without ductwork, so that the customer could realize the maximum salvage value of the equipment if ever the firm moved to a new location. The two 10-hp units in the shop itself were installed back to back in approximately the center of the shop area. They were provided with a common fresh air intake leading up through the roof, and each unit was capped by a three-directional plenum designed to distribute air to all corners of the printing shop.

A 25-ton all-metal cooling tower was installed on a ground level platform outside the building to accommodate the new air conditioners installed for the printing and photographic areas. The metal tower also enhanced the salvage value of the installation. While a wooden tower would have cost the customer less at the outset, nearly 50% of the installed cost of such towers lies in the labor involved in their erection, and consequently never can be reclaimed.

Keeping the cooling tower for the shop portion of the system separate from that serving the office unit offered another advantage. The office operates on Saturday, whereas the shop does not. Thus the office conditioner can be operated without involving the in-

creased operating cost of the larger cooling tower.

Because of the expensive nature of many of the printed pieces turned out by this shop, it was imperative that any insulation applied to the ceiling be of such a nature that it wouldn't collect dust and drop it onto the printing equipment or the printed pieces themselves. The smooth, shiny surface of the aluminum foil blanket met this condition ideally. A further "bonus" benefit of this insulation was that its extremely high reflective value greatly increased the level of effective illumination within the shop.

Cost of the insulation job was approximately \$2000, but it was readily sold to the management of the printing firm when it was pointed out that the sum was far less than it would cost to install or operate the amount of additional air conditioning equipment which would have been required to condition the plant if it were to remain uninsulated.

LASSIE LIVES IT UP!



DOG'S LIFE takes on new meaning for Lassie, the canine TV star, now that Fedders-Quigan Corp. has provided a ¾-ton air conditioning unit for this famous pet's room in the Lassie Kennels, North Hollywood, Calif. "Thanks a million," Lassie was saying—in dog language—at the moment that this picture was taken.

REGIONAL OFFICE MOVED

In order to insure more effective servicing of the Southeastern United States, General Controls Co. has moved its regional sales office and warehouse from Birmingham, Ala., to Atlanta, Ga. Address of the new facility is 1479 Spring St., N.W., Atlanta.

SUTTON ANNOUNCES NEW FINANCE PLAN

Arrangements to finance floor stocks of "Vornado" distributors and dealers, and purchases of their customers, through Commercial Credit Corp., was announced recently by O. A. Sutton Corp.

"With this plan, our dealers and distributors will be in a position to stock and sell our products without shrinking their own working capital," commented O. A. Sutton, president and chairman of the board. He also noted that financing history shows air conditioners have one of the smallest repossession records of any appliance.

CONTRACTORS ATTEND CHASE SUPPLY SHOW

More than 140 contractors from the nearby area attended an exhibition of refrigeration, air conditioning and heating equipment conducted by Chase Supply Co., Chicago wholesaler.

Products were exhibited by 25 companies, and a motion picture, "How to Sell Quality," was shown.

Exhibitors included: A-P Controls, American Brass Co., Bell & Gossett, Betz Corp., Bush Mfg. Co., Copeland Refrigeration Corp., Detroit Controls Corp., Dole Valve Co., DuPont Chemicals, General Controls, Henry Valve Co., Herman Goldberg Co., Linde Air Products, Marsh Corp., McDonnell-Miller, McIntire Connector Co., Minneapolis-Honeywell, Mueller Brass Co., National Radiator Co., Ridge Tool Co., Sporlan Valve Co., Superior Valve Co., Temprite Products, White Products Corp., and White Rodgers Controls.

WORTHINGTON MAKES FILM SHOW AVAILABLE

A 13-minute sound motion picture, "The Case of the Hot Weather Blues," recently filmed by Worthington Corp., is available for public and private showings.

The film shows benefits of air conditioning in comfort and health, savings in housework and cleaning, and various types and styles of units from which home owners and builders may choose.

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," \$4.50 minimum, limit 25 words. For all other classifications, \$2.00 minimum for 25 words or under, each additional word 20¢. Boldface type or all capitals, \$18.00 minimum for 25 words or under, each additional word 25¢. All classified advertising payable in advance.

POSITIONS WANTED

Refrigerating Engineer desires position in Boston or vicinity. Broad experience includes large ammonia systems and freezing plants. Age 31, M.I.T. graduate, M.S. in mechanical engineering. Box 7155, COMMERCIAL REFRIGERATION & AIR CONDITIONING.

REPRESENTATIVES WANTED

MANUFACTURERS AGENT OPPORTUNITY: PRESSURE SENSITIVE INDUSTRIAL TAPE LINE. EXCLUSIVE TERRITORIES OPEN. LIST CURRENT TERRITORY, LINES CARRIED AND BIOGRAPHY. WRITE BOX 7255, IN CARE OF COMMERCIAL REFRIGERATION & AIR CONDITIONING.

TEST CHAMBERS . . .

Continued from page 47

shaft is sealed by a mechanical shaft seal at the point where it enters the chamber. Fan speed is automatically controlled so as to supply as nearly constant volume of air as possible regardless of the altitude. Fan speed increases as altitude increases.

The walk-in chamber has a temperature range of from -120 F to 200 F to allow for either high or low temperature testing. An anteroom to this chamber is held at zero F. The test chamber proper is 5' x 5' x 7' high, and has an interior of stainless steel. Insulation is glass fiber, 12" thick. The chamber was constructed as a sectional unit, so that its size may be increased if desired.

Fresh air supply for the walk-in test chamber is adjustable from 5 to 20 cfm. Air is dehydrated before entering the chamber to prevent excessive frosting of the cooling coils. Two centrifugal fans, mounted on a common shaft and driven by an externally-mounted fan motor, supply air circulation within the test chamber. A 24" x 24" seven-pane Thermopane view-

ing window also is provided in this unit for observation use.

Refrigeration is supplied by two 15-hp condensing units, connected in a cascade system, again using Freon-22 in the high stage and Freon-13 in the low stage. Tubular type electric heaters are used for heat supply.

Control of temperatures within this chamber, as with the altitude chamber, is by means of a cam-type program recorder-controller.

A zero-degree anteroom, 3½' wide and 5' long, permits entrance into the chamber at low temperatures without appreciably warming up the test chamber itself. This anteroom is served by a 2-hp single stage condensing unit, connected to an automatic defrost blower coil.

The humidity cabinet, especially built to Bell & Howell requirements, covers a temperature spread from 35 to 185 F and humidity from 20 to 95%. This is a lift-top type cabinet, also equipped with a viewing window, and provided with a 6" hand hole port to allow equipment to be moved while tests are in progress. Paints, finishes, operating mechanisms, lenses and electronic gear are tested in this cabinet. The unit is also program-controlled, and one-month test cycles can be run without attention from the operator.

ICE MAKERS . . .

Continued from page 51

and consequently has diminished the number and amount of claims against the Agency by shippers, as a result of shipments arriving in poor condition.

R. G. West, general agent of the Atlanta Railway Express Agency, readily vouches for this improvement in re-icing practices, and flatly states that the estimates of savings made possible by the new equipment at the time of the sale probably were extremely conservative. "In fact," West declares emphatically, "next to our power conveyor system for handling all sorts of packages, I'd have to say that those ice makers have resulted in the biggest improvement in our operations that I've seen in all my 43 years with the Railway Express."

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Hundreds of thousands in use daily! A handy voltage indicator of unlimited use. Takes the place of costly, delicate instruments. Carry it in your pocket, or drop it in your tool box — it's always ready for use!

★ **RUGGED!** Neon lamp indicator stands overloads, mechanical shock, and lasts a lifetime. Practically indestructible!

★ **ACCURATE!** Measures AC or DC. Indicates 2-3 volt difference at 110 volts. Checks fuses, continuity, shorts, live wires, grounds, voltage drops, etc.

Model 400B including 12" insulated leads and test prods.

\$3.75 LIST

Order from your distributor.
Write for free catalog . . .

INDUSTRIAL DEVICES INC.
EDGEWATER, N. J.



and NO WATER required

Where water is taxed or supply limited, where drainage facilities are inadequate, where water has a corrosive action on water-cooled condensers, or local laws limit the use of city water for condensing purposes; the logical answer to your refrigeration or air conditioning condensing problem is a WITT AIR COOLED CONDENSER.

WITT AIR COOLED CONDENSERS are offered in a range of sizes between two and ten ton capacities or any multiples thereof. Some units are applicable for indoor or outdoor installation.

Write for information

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940 North Sycamore Av.
Los Angeles 38, Calif.

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FINE LINE
OF

WITT Coils

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